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BEFORE THE

SUBCOMMITTEE ON
FEDERAL SPENDING, BUDGET, AND ACCOUNTING

OF THE

COMMITTEE ON
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

THE FLORIDA DEMONSTRATION PRODUCT ON RESEARCH PRODUCTIVITY

APRIL 14, 1987
ORLANDO, FL

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CONTENTS

Page

Opening statement of Senator Chiles 1

WITNESSES

APRIL 14, 1987

Dr. Robert M. Johnson, Vice President, Research and Graduate Studies, Florida State University 4
Dr. Charles B. Reed, Chancellor, Florida State University System 9
Dr. Edward T. Foote II, President, University of Miami 11
Dr. Dale Corson, President, Cornell University and Chairman, Government-University-Business Roundtable of the National Academy of Sciences 13
Dr. William Raub, Deputy Director, National Institutes of Health 16
Gerald Lewis, Comptroller, State of Florida 16
Dr. Sidney L. Besvinick, Associate Provost for External Affairs, University of Miami 18
Dr. George R. Newkome, Vice Provost, Office of Research and Graduate Studies, University of South Florida 21
Dr. K.B. Wagener, Department of Chemistry, University of Florida 23
Dr. Lawrence G. Abele, Chairman, Department of Biological Sciences, Florida State University 25
Dr. Joseph G. Cory, Department of Internal Medicine, College of Medicine, University of South Florida 27
Dr. David R. Burgess, Professor, Department of Anatomy and Cell-Biology, University of Miami Medical School 30
Marshall M. Criser, President, University of Florida 32
Dr. John Dearden, Director, University Sponsored Programs of Research for Johns Hopkins University 33

ALPHABETICAL LIST OF WITNESSES

Abele, Dr. Lawrence G.:
Testimony 25
Prepared statement 76
Besvinick, Dr. Sidney L.:
Testimony 18
Prepared statement 66
Burgess, Dr. David R.:
Testimony 30
Prepared statement 85
Corson, Dr. Dale:
Testimony 13
Prepared statement 62
Cory, Dr. Joseph G.:
Testimony 27
Prepared statement 80
Criser, Marshall M.:
Testimony 32
Prepared statement with an attachment 87
Dearden, Dr. John:
Testimony 33
Prepared statement with attachments 93
Foote, Dr. E. Thaddeus, II:
Testimony 11

Page

Foote, Dr. E. Thaddeus, II—Continued
Prepared statement 59
Johnson, Dr. Robert M.:
Testimony 4
Prepared statement with attachments 41
Lewis, Gerald: Testimony 16
Newkome, Dr. George R.:
Testimony 21
Prepared statement 69
Raub, Dr. William: Testimony 16
Reed, Dr. Charles B.:
Testimony 9
Prepared statement 55
Wagener, Dr. K.B.:
Testimony 23
Prepared statement 75

APPENDIX

Prepared statements of witnesses in order of appearance 41
"NIH Perspective on the Florida Demonstration Project," from the Office of the Director, National Institutes of Health, April 13, 1987 107
Statement of William B. Cole, Jr., Director, Division of Grants and Contracts, National Science Foundation, April 14, 1987 117
"Research Productivity and Administrative Costs: An analysis of Selected Federally Prescribed Research Administration Activities," report by the University of California, Columbia University, the University of Florida, the Johns Hopkins University, the University of Miami, the State University of New York, and the University of Virginia, April 1987 123
Letter to Senator Chiles from Robert M. Johnson, Vice President, Research and Graduate Studies, Florida State University, May 5, 1987 168
"Columbia University Grants Administration Study," by James P. Lewis, Director, Office of Projects and Grants, Columbia University, April 14, 1987. 169
"University of California Grants Administration Study," by William K. Sellers, Ph.D., Contract and Grants Officer, and David F. Mears, University Contracts and Grants Coordinator, University of California 179
Letter to Senator Chiles from John F. Buckhoff, Jr., Executive Vice President, the Research Foundation of State University of New York, April 28, 1987 226
Letter to Senator Chiles from Erich Bloch, Director, National Science Foundation, April 21, 1987 228

PAPERWORK REDUCTION OVERSIGHT

APRIL 14, 1987

U.S. SENATE,
SUBCOMMITTEE ON FEDERAL SPENDING,
BUDGET, AND ACCOUNTING,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Orlando, FL.

The Subcommittee met, pursuant to notice, at the Crowne Plaza Hotel, Hon. Lawton Chiles, Chairman of the Subcommittee, presiding.

Present: Senator Chiles.

OPENING STATEMENT OF SENATOR CHILES

Senator CHILES. Good morning.

I am delighted to join with you this morning and to be able to hold this hearing on the Florida Demonstration Project on Research Productivity.

While the project officially began in March of last year, you might say this hearing has been a longer time in the making. I know how much work went into the launching of this pilot program. I remember back in 1983 when the National Science Foundation chose Florida to launch its "master-grant" program.

The spark of enthusiasm this simplification initiative generated led to a kind of grassroots movement among folks who work with federally sponsored research. They encouraged Chancellor Reed, President Foote, the five federal agencies, and the Government-University-Industry Roundtable of the National Academy of Sciences to come together in Florida for this demonstration.

Let me add, Comptroller Lewis, I certainly am pleased to see the efforts on your part to make this agreement work.

I am proud we in Florida can serve as a crucible for other states. Our Nation needs to be committed to the search for excellence in the conduct of basic research.

I sense enthusiasm is building in this project. Our hearing today will be to gather key players and to see how things are working. After we get an understanding of what the project does, I will be asking whether we should extend the project beyond this year; whether we should encourage other federal agencies to join in; and whether the Florida experience should be expanded to the whole country?

National expansion will take some new legislation. I plan to give thorough consideration to introducing such a bill.

Before we begin, let me make a broad point. We all know basic research and technology innovation is key to economic growth and

key to our ability to compete with the Japanese, the European countries, and our other trading partners. But there is a reason behind that truth which ought to be highlighted.

We are living in a time of rapid change in our economy. Heavy industries are becoming a smaller part of industry. We see service industries are expanding. We in Florida for example, live in a growth state, and are at the forefront of this transition.

We have a "computer coast" in the southeast around Dade, Broward, and Palm Beach; "space coast" here in East-Central Florida; and a "technology bay" around the west coast counties of Pinellas, Hillsborough, Manatee, and Sarasota.

The high technology sector is at the heart of Florida's economic future, and research is at the heart of high technology.

All this change is characterized by one very important fact. Raw materials and natural resources are no longer the foundation of our economy. Knowledge is now the most essential element.

This is a reason the productivity of basic research conducted in our colleges and universities is among the highest priorities of the Nation. To a large extent, you-all in the colleges are the producers of knowledge upon which our industry and our national security depend.

Fortunately, Florida is a leader in providing a core group of scientists in our colleges and universities who engage in basic research. This is an important group of producers to focus upon. I believe the search for excellence by these producers is the key to a most powerful economic engine.

As Chancellor Reed will note, Florida gets some $170 million in federally sponsored research dollars. With that money comes many strings and regulations. Every year brings a new layer of bureaucratic conditions. After time, many of the requirements no longer make sense. We cannot afford the waste that results.

The pilot program we will be talking about today has two basic objectives. It intends to eliminate unnecessary paperwork and red tape and thereby reduce the cost of research. It also intends to better "match-up" needed accountability requirements with the way that researchers actually do their work. A result should be that more of the federal dollar will go to the actual science and less to that cost of administration. Scientists should be able to spend more of their time in the labs and working on the science and less on paperwork. They should be able to be more creative.

So far Florida is the only state involved in this "do science" project. This is one program that does not depend on more federal money. The idea is to do more with what we already have and what we are already spending.

[Senator Chiles' prepared statement follows:]

PREPARED STATEMENT OF SENATOR CHILES

I am delighted to be able to hold this hearing on the Florida Demonstration Project on Research Productivity.

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They encouraged Chancellor Reed, President Foote, the five federal agencies and the Government-University-Industry Roundtable of the National Academy of Sciences to come together in Florida for this demonstration.

I am proud we in Florida can serve as a crucible for other states. Our Nation needs to be committed to the search for excellence in the conduct of basic research.

Let me add I sense enthusiasm is building in this project. Our hearing today will be to gather key players and see how things are working.

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Before we begin, let me make a broad point.

We all know basic research and technology innovation is key to economic growth and key to our ability to compete with Japan and other countries. But there is a reason behind that truth which should be highlighted.

We are living in a time of rapid change in our economy. Heavy industries are becoming a smaller part of industry. Service industries are expanding. We in Florida for example, live in a growth state, and are at a forefront of this transition.

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Fortunately, Florida is a leader in providing a core group of scientists in our colleges and universities who engage in basic research. This is an important group of "producers" to focus upon. I believe the search for excellence by these producers is key to a more powerful economic engine.

As Chancellor Reed will note, Florida gets some 170 million in federally sponsored research dollars. Along with the money comes strings and regulations. Every year brings a new layer of bureaucratic conditions. After time, many of the requirements no longer make sense . . . and we can not afford the waste that results.

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A result should be that more of the federal dollar will go to actual science and less to administration. Scientists should be able to spend more time on science and less on paperwork. They should be able to be more creative. So far Florida is the only state involved in this "do science" project. And this is one program that does not depend on more federal money. The idea is to do more with what we already have.

I look forward to hearing from you all.

Senator CHILES. I certainly look forward to hearing from you all and maybe at the outset it would be helpful Charlie, if we just start with you, Dr. Charles Reed, and ask everybody to introduce themselves so that our audience might understand the accumulated talents we have put around the table here today.

Dr. REED. Chancellor Reed of the Florida State University System in Florida.

Comptroller LEWIS. Comptroller, State of Florida.

Dr. CRISER. Marshall Criser, President of the University of Florida.

Dr. BOLTT. Administrator of Finance at the University of Central Florida.

Dr. ROBINSON. President of the University of West Florida.

Mr. COLE. Director of Grants and Contracts, National Science Foundation.

Mr. DOLAN. The Office of Naval Research.

Dr. WAGENER. Department of Chemistry, University of Florida.

Dr. ABELE. Department of Biological Science, Florida State University.

Dr. CORY. Department of Internal Medicine, University of South Florida College of Medicine.

Dr. BURGESS. Department of Anatomy and Cell-Biology, University of Miami Medical School.

Dr. JOHNSON. Vice President, Research and Graduate Studies, Florida State University.

Dr. BESVINICK. Associate Provost for External Affairs, University of Miami.

Dr. NEWKOME. Vice Provost, Office of Research and Graduate Studies, University of South Florida.

Dr. FOOTE. President, University of Miami.

Dr. RAUB. Deputy Director of the National Institutes of Health.

Dr. CORSON. President Emeritus, Cornell University and for the past three years chairman of the Government-University-Business Roundtable of the National Academy of Sciences.

Dr. DEARDEN. Director, University Sponsored Programs of Research for Johns Hopkins University.

Dr. HUMPHRIES. President, Florida A&M University.

Dr. POPOVICH. President, Florida Atlantic University.

Dr. BROWN. President, University of South Florida.

Dr. HARRIS. Associate Administrator, Cooperative Research Service, USDA.

Senator CHILES. Thank you very much. Now, for kind of a description of the project. Dr. Johnson, I call on you to give us that description, if you would.

TESTIMONY OF DR. ROBERT M. JOHNSON, VICE PRESIDENT, RESEARCH AND GRADUATE STUDIES, FLORIDA STATE UNIVERSITY

Dr. JOHNSON. I am pleased to be here and make this testimony before the subcommittee. I have submitted a formal report.[1] I have also prepared some view graphs. But if you turn to the back of my report, I have a listing of those graphs and what we can do is to go through those.

Senator CHILES. Your full report is going to be admitted into the record?

Dr. JOHNSON. Yes, it is, sir.

What I wanted to do is to use the graphs because I think it is a little easier for the audience and for the panel to follow. Starting with the first one that says. "Participants in the Florida Demonstration Project, I think we all are aware of the hard work and interest you have had in paperwork reduction and cost savings in the last ten years. We also are aware of the National Science Foundation, and the National Institutes of Health; through their OPAS

[1] See p. 41.

and IPAS systems have made great strides in trying to work with this paperwork reduction and streamlining research administration.

One individual I think that really should receive commendation at this hearing is Bob Newton. Bob as former policy officer with the National Science Foundation has been very instrumental in the OPAS system and the whole process of paperwork reduction. He worked very closely with all of us and I think Bob is here and I want to make sure that he got proper recognition for his hard work and development of this project. Without him we would not be here today.

Also, June 5, 1985 the National Academy of Science convened a session in Washington, specifically the Government-University-Industry Roundtable on bureaucratic accretion. From that meeting a series of discussions directed by Bob and others lead to the selection of Florida in the Florida Demonstration Project.

I have listed there, the five agencies which are participating in the project. They are the National Science Foundation, National Institutes of Health, the Department of Energy, Office of Naval Research, and Department of Agriculture.

Also, the ten universities involved. As you see we have nine from the state university system, and the University of Miami, which is a private institution.

Turn to the next graph, the Florida Demonstration Project. The core of the Demonstration Project is what we call the Demonstration Agreement. This was signed off by Chancellor Reed and President Foote on March of 1986. The program really didn't get underway and fully implemented until June of '86, and was scheduled to run through December 31 of 1987.

The demonstration project is, I think, as you have pointed out, Senator, an innovative approach to the administration of research designed to help reduce the ever increasing burden of paperwork. And I guess also to look at innovative ways and another method of holding down the accumulation of indirect cost rates.

The central theme or central feature, I should say, of the demonstration project is the General Terms and Conditions. It covers all research grants in effect and on subsequent dates through March 1, 1986. You note research contracts are excluded.

Now, these general terms and conditions were written by five agencies. It is the first time in 30 years of research administration I have seen five agencies sit down and agree on a single set of conditions. And what is more important, I believe now we have ten universities who also agree. So we have 15 agencies which are working closely together in this project.

Now, the project itself is a "Florida" Demonstration Project. We emphasize the federal aspects of it but it is also a project which is designed to streamline the problems and research administration not only from the federal standpoint, but also from the universities because we are incorporating ourselves in this process as well as the State and we will get into that in more detail.

Some of the major changes which we are looking for in this project are listed down below. Now, the "relatedness" concept is one of the key issues of the demonstration project. Here we can take separate grants of one or more principal investigators, put

them together in 9 single projects, single programs or single budget, if you like. We can use one investigator with a number of projects and combine his research into one program.

We can use a number of investigators and combine them into a single program thus making it more easily manageable from our standpoint. We have not approached this concept, but it is possible that we can take two institutions and take two or three projects which are related between institutions and make those into a single program and administer them in this fashion.

Fiscal accountability is simplified. We now have, once the relatedness is established, we have the costs that can be allocated to the program can be charged to any one of the separate awards that make up the program in any proportion. Basically what we have done is reduce this down to a single direct charge. A direct budget so to speak.

We at Florida State University and I believe at the other institutions are now looking at two budget categories: Direct and Indirect. And that is all we manage by. In the past we used to have to verify a whole series of categories, maybe 10, 15. Budget amendments are no longer required except in cases where the overhead distribution is affected by the expenditure.

Another feature is the carry over of funds. This is important because at the end of a fiscal year or budget year, the P.I.'s with multiple year awards will be permitted to carry over any unexpended balances to the following years increment. This authority will not apply in the final year of the grant, but a no cost extension could be requested.

The authority to delegate to the universities. Universities for the first time now have approval to make preaward costs up to 90 days. We realize we do this at our own risk. Also, we can approve no cost extentions for up to 12 months.

Rebudgeting. This is I think a rather attractive feature on our campus because in the past we used to have forms that looked something like this, (indicating). These are no longer required by our principle investigators now. And believe me, when they saw this, they were delighted. They did not have to come back and reprogram their budget.

They could sit in their own office and decide we want to make this change and make that change.

Senator CHILES. Normally where would that form have to go?

Dr. JOHNSON. That would have to go to the department chairman, the academic dean, and the director of research. There were four signatures, now there is none. And it makes my life a little simpler too. I can walk across campus now without being hit by a faculty member. It has virtually done away with cost transfer concerns because now we are not really worried about transferring from one cost item to another.

Also, at the universities we have reduced the number of signatures required from about, in some cases we used to have 10 or 12 signatures, now we are down to two signatures.

Senator CHILES. But now this is still capable of audit at any stage?

Dr. JOHNSON. Yes, sir. We are very much aware that an audit will follow this up. Now, if you will turn to the two tables which I

have in the chart, I think this will kind of summarize the situation of the major changes at which we are looking.

Table One shows the government-wide approvals for the current system verses the demonstration project. You see in the first column the government-wide approvals, about 50 percent of our awards are still under this project, under the government-wide approval system. But for those under the demonstration project we have done away with most of these prior approvals, with the exception of those which must be approved under the demonstration agreement by the federal agency such as: change in scope, Number 9; additional funding, Number 10; termination for convenience, Number 14; and disposition of federally owned property, Number 17.

Now, Table Two is even more interesting because under the demonstration agreement we have special terms and conditions. Some agencies needed to have protection because of statutory limitations. Again, these are limited. You can see those listed with "E" are what is required external from the university. Again, the first three; relatedness, change in scope, and absence or change in P.I.

Now, the relatedness, this was added later after having the agencies approve they wanted to go through a demonstration or through an experiment to see if this was really needed. I think in the long run we are going to ask that this be delegated back to the institution. Then I have each agency which is participating in the program. And you will see that one or two of these agencies have statutory limitations since they must have approval on. For instance, Number 12 the National Institutes of Health, Number 10, Number 9, and so forth. But, again, these are very limited and we are very pleased with them.

Now, how did we put this project into force at Florida State, University of Florida, and the University of Miami? If you will turn to the next one, Approach by the State University System, these will be discussed in more detail by Chancellor Reed and President Foote and some of the other people. But I want to touch on it quickly to show the structure we used in developing this program and conducting it in the State of Florida.

The Chancellor and President Foote appointed a statewide steering committee that is attached for your convenience on the next page. I give you this not for the names but for the individuals and their positions. You will notice that through the wisdom of Chancellor Reed and the President we have a very wide distribution of people on this committee. Not only university representation, but we also have the Comptroller's office represented. We have the House and the Senate of the State, we have federal people, Bob Newton is involved, and from your office, Robert Coakley. Milton Goldberg, and of course, the Roundtable. You will note down at the bottom, the Florida High Tech Industry Council because we believe this should be and could be extended to industry.

I mentioned that, pardon me, also within the campuses we asked them to have individual campus committees involving faculty, administrators, and staff so that we could then have this thing communicated widely throughout the campuses.

I mentioned earlier that we were concerned about federal changes. We are also concerned about university changes and we

are concerned about state changes. State changes will take two approaches, those which would be done administratively and those which need statutory thus legislative involvement.

Now, if you will turn to the next view graph. In July of last year we met in Washington. A number of universities, and those are listed down below, and you participated in that meeting, also, Senator. You asked us if we could do a study that would show some cost savings or cost reductions or as we like to say, a cost redirection from administration to the support of the research and in support of science.

This report has been developed. It is this yellow book which has been distributed. It will be discussed in more detail later by John Dearden from Johns Hopkins University. But I would like to say that all of the individuals who participated in the program with these institutions are here in the room today. They have given us very good cooperation. They have worked hard since July of 1986. You will find the report is quite revealing and quite informative.

Two sections of the report were left out. A special report from the University of California, and a special report from Columbia University. These will be added later. We just did not have time to finalize those two reports.[1]

So, in summary, then, I am going to leave the final view graph, recommendation for expansion, because I understand that Chancellor Reed has some comments he wants to make and I think it would be appropriate for other people to talk about that.

But in summary the Florida Demonstration Project in my mind has already proven to be an unqualified success because it has increased research productivity at the principal investigator level. Two, eliminated combersome federal, state, and university requirements. Three, reduced federal, state and university requirements without decreasing accountability for those federal funds. Universities have the controls needed to ensure accountability.

And testimony will be given during the process of today's hearing that provides support for these claims.

We need to return to a more trusting relationship among federal, state, and local entities. The stewardship of federal funds is not the sole responsibility of the federal and state bureaucrats. The universities and principal investigators know how to spend their funds effectively on research programs. Principal investigators, we have four of them here, know how to accomplish the objectives of their research programs. It is time for responsibility and performance to be located in the same place where the research is being done.

Senator CHILES. Thank you very much, Dr. Johnson. Thank all of you for the work that you have done in this project. I also want to thank all of you who participated in the study.

As I indicated last summer in Washington, Congress really needs this information on the cost of research. And I do not believe right now the executive branch, and in particular, the Office of the Management and Budget, is able to tell us much about what the cost of regulations and federal requirements are. That is why the study is important.

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[1] See p. 169 for the Columbia report and p. 179 for the California report.

It's a beginning to see where we can make this change and we will certainly make the study a part of our hearing record.[1] And I will work with you all in trying to distribute this to government agencies as well as to the higher education community.

I think at this stage, we will now call on you, Chancellor Reed, and ask you to give us an overview of what your expectations for the project are.

TESTIMONY OF DR. CHARLES B. REED, CHANCELLOR, FLORIDA STATE UNIVERSITY SYSTEM [2]

Dr. REED. We are here today in part because of the long-standing interest of Senator Lawton Chiles in basic research and the critical role it plays in the development of new knowledge, new products, and the constant renewal of our economy in this nation's competitiveness. We are able to make this presentation to you today due to the spirit of cooperation and dedication to fiscal responsibility of Gerald Lewis, our State's Comptroller. He is here with us today and will have some remarks to make later on.

Your state university system is particularly grateful to have been given the opportunity to make some changes in the way our nation administers basic research. We greatly appreciate the opportunity to report to you, Senator Chiles, on the success of this program, one which we believe you will be able to take back to Washington and implement across the nation at a savings of many, many millions of dollars.

Let me give you an idea of the dimension of the issue in Florida Universities alone. In the nine State universities and the University of Miami, the combined research budget is approximately 270 million annually. Of that total as Senator Chiles has indicated approximately 170 million is from federal sources.

The five agencies of the federal government which agreed to participate in the project provide approximately 25 percent of that total, almost 70 million dollars a year into Florida universities. The goal of this project is simple, to increase research productivity through simplifying administrative processes. We are seeking a better match up between the federal and state financial and administrative controls with the way research is actually done today by the researchers in our state universities and the University of Miami.

As we look for ways to reduce the expense of red tape, we keep two objectives in mind. First, we have to maintain accountability for public funds and measure and evaluate our results. Second, we have to maintain strong administration to create a healthy research environment. Let us take accountability first.

First we established a steering committee consisting of representatives of our university research community , the Florida House of Representatives and the Florida Senate, the Executive Office of the Governor, and the Comptroller's office.

This steering committee was given the assignment of directing the project and monitoring its progress. The Research Roundtable of the National Academy of Sciences undertook responsibility for

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[1] See p. 123.

[2] See p. 55 for Dr. Reed's prepared statement.

independently evaluating our results. President Tad Foote of the University of Miami and I executed an agreement with the five participating agencies: the National Science Foundation, the Department of Energy, the Office of Naval Research, the Department of Agriculture, and the National Institutes of Health.

Second, we added this initiative to a growing list of administrative support systems designed to promote a positive climate for research. We began in an environment already conducive to supporting and not hamstringing research in our universities.

Florida Statutes already exempted sponsored research activities from certain practices common to other state agencies such as the requirement for central clearance in Tallahassee for the nuts and bolts of the competitive bidding process.

Recent legislation has continued the nurturing of research activities in a variety of areas. These range from the creation of a new state university personnel system to the exemption of research dollars from the appropriations process in Tallahassee.

We have developed mechanisms to facilitate the exchange of new technologies resulting from research. We have developed a new process for improving the preaudit of payments producing a one-third improvement in turn-around time with no loss of accountability. As we began to evaluate our processes, however, we found something very interesting and somewhat humbling to us in the state university system.

Some of our own practices were as constraining as those at the federal and state level which we had criticized. Frankly, I will say that our own internal university procedures and paperwork were probably as bureaucratic as anything that we found. These included duplicate record-keeping systems, multiple internal approvals of researcher's budgets, multiple paychecks to researchers reflecting various projects on which they are working. Data collection with no clear management purposes and separate accounting systems for federal, state, and university purposes where one would have sufficed. These all represent opportunities for cost reductions.

One very important benefit of this project has been the communication we have developed between the administrators and the researchers, the people whose hand we untied when we untangle the red tape.

As we look ahead, we see many additional opportunities for continued improvements. A special task force is continuing to explore with the Comptroller's office still more improvements in the way in which we administer research funds in the state. We have developed several pieces of legislation which are currently before the Florida legislature this session. We have asked the Project Steering Committee to develop a five year plan for continued improvements.

Senator Chiles, you will hear testimony today that we believe will convince you that this Florida Demonstration Project is an unqualified success. The changes demonstrated here must be extended beyond the initial time frame of this single project.

The project must be expanded to include all participating federal research funding agencies, covering all types of research support including contracts and cooperative agreements.

And finally, we strongly recommend to you that you extend this process to other universities throughout the nation. To that end we

have recommended 16 specific issues for further consideration such as establishing a single federal letter of credit for each university, eliminating statutory cost-sharing, standardizing financial reporting, and simplifying proposal application.

This is an effort whose benefits need to be shared with other agencies and other universities and with the future of American research. I am very grateful for the opportunity to be with you today and we will be glad to respond to any questions you may have. But our bottom line, Senator, is we would like to see you introduce that legislation and expand this to the other agencies and to the other universities throughout our nation.

Senator CHILES. Thank you very much. We are going to take just about a five minute break here and then when we come back, we are going to hear from President Foote on his expectations of the project.

[Recess.]

Senator CHILES. I think we can have people's attention now. Now that we are through with this short five minute break. We will call on President Foote to give us his expectations for the project.

TESTIMONY OF DR. EDWARD T. FOOTE II, PRESIDENT, UNIVERSITY OF MIAMI [1]

Dr. FOOTE. Senator Chiles, ladies and gentlemen, my name is Tad Foote and I am President of the University of Miami.

It is a pleasure for me to speak with you today about the Florida Demonstration Project which has already been noted an extremely important one and widely watched effort in the United States and maybe elsewhere. I will spare you a long recitation of the problem. The room is full of experts on the problems. And Senator Chiles you probably know more about them than anyone else in Congress.

I was interested to learn last night that you became interested in the problem of excess paperwork maybe a dozen years ago in other vineyards in Congress and that work led to our being here today. We are deeply grateful for your interest in this extremely important problem.

I want to emphasize the close relationship between the goals of the Florida Demonstration Project that have described America's need to strengthen its competitive position in the world community. Our future depends on our ability to create and to use new technology. Leadership and technology depends on the expansion of ideas which grow out of basic research. To generate this basic research and the technology we need, scientists must have the time and the energy to devote to their work.

I was interested in preparing these remarks to note in a recent National Science Foundation publication the following three facts: First of all, our trade balance which relies on productivity is increasingly negative. Second, productivity in the United States has averaged barely 0.3 percent in recent years, while our competitors in the global market place have done 5 to 15 times as well. Thirdly, productivity depends heavily on new technology and ours is lagging. Thus, this project was very good news to all who value basic

[1] See p. 59 for Dr. Foote's prepared statement.

research. I think we are indebted to the Research Roundtable of the National Academy of Sciences and the five federal agencies. Certainly we are indebted to the state university system in Florida, our friends and partners in this venture.

The heart of the project has been described by others. It is essentially the elimination of most federal prior approvals, elimination of line item budget controls, authorization to grantees to allow preaward costs, authorization to grantees to extend completion dates of awards, permitting unrestricted carryover of funds on a continuing grant; and the establishment of a process for grantees to relate all projects to one principal investigator. At the University of Miami, Senator, for your information there are 25 principal investigators with two or more awards that could be considered related. And one of my colleagues is here and will be testifying in more detail in a moment.

So far, I am pleased to report from the perspective of the University of Miami, the project is proving extremely successful.

It is also important to note that this project includes research universities in both the public and private sectors. The business practices of rules and procedures are similar in both sectors, but as the private partner in this venture, although we have our fair share of bureaucrats in our way, the University of Miami can be flexible and adjust its practices perhaps more quickly than institutions that are part of a larger system. Because of this, our university has been able to put into effect many of the fiscal practices that NSF and NIH had established earlier in their Organizational Prior Approval Systems, known as OPAS.

In the Florida Demonstration Project we are now expanding these practices to awards granted by the Office of Naval Research, the Department of Energy, and the Department of Agriculture. I want to give special recognition to the Office of Naval Research which only recently placed a series of basic research contracts at the University of Miami Rosenstiel School under the rules of the Florida Demonstration Project. For researchers whose grants fit within the Florida Demonstration Project, life has become simpler. The approval of changes in the administration of their funds happens more quickly and far less time is wasted.

Notwithstanding this streamlining, accountability has not been lost nor has responsible oversight of academic practices and expenditures. We have already eliminated many unnecessary and time-consuming requirements for prior approval. The first goal of increasing the time scientists spend in their laboratories has been met.

Unfortunately, however, we are not able to use these improved systems with NASA, the Air Force, the Department of Education or other agencies because they are not part of the Demonstration Project. As a result we must maintain records in two different ways, curtailing some of the effectiveness of the project.

The University of Miami has also joined several institutions in the preliminary analysis in cost of research especially as they relate to the Florida Demonstration Project. I do not have to remind anybody in this room that research is expensive.

We found by removing administrative responsibilities from our researchers the project has made it possible for them to redirect

more of their efforts into the production of knowledge. The data remains incomplete, Senator, and while work needs to be done, the survey results support the following inferences:

First, federal administrative requirements have significant dollar costs, about that there is simply no question. Federal administrative requirements contribute little to program accountability and often ironically impede research quality and quantity. For universities using sound business practices, many federal requirements are a redundancy that could be eliminated or reduced. Eliminating federal involvement in university fiscal affairs could result in staff reduction and savings in the federal bureaucracy as well as better science.

Eliminating needless controls and modifying other requirements imposed by both governmental agencies and university offices could make still more money available for research. Already the Florida Demonstration Project has proved itself worthwhile.

The five federal agencies under the aegis of the Government-University-Industry Research Roundtable have taken strong leadership to propose productive changes in the arrangements for the support of academic research at universities.

We at the University of Miami are privileged to work with our friends in the State University System in so important an undertaking. We are convinced that the implementation of this program and its expansion will help America remain strong and keep it strong through better science.

I wish to join the Chancellor in thanking you, Senator, for your interest and your support. I appreciate the opportunity to speak with you this morning.

Senator CHILES. Thank you, Dr. Foote. We are delighted with your support and also the leadership role that you have taken single-handedly to bring in the private universities into this project. We know some of the private universities are in the major research areas where much of our dollars are spent. They certainly have every reason to be involved and we are delighted.

Now, we will hear from Dr. Dale Corson, Chairman of the Government-University-Business Roundtable of the National Academy of Sciences and President Emeritus of Cornell. My understanding is Dr. Corson even cut short a trip from down under in Australia to be with us today. We are delighted to have you and your encouragement and enthusiasm all along the way for this project.

TESTIMONY OF DR. DALE CORSON, PRESIDENT, CORNELL UNIVERSITY, AND CHAIRMAN, GOVERNMENT-UNIVERSITY-BUSINESS ROUNDTABLE OF THE NATIONAL ACADEMY OF SCIENCES [1]

Dr. CORSON. Senator Chiles, thank you very much. Anything to come to Florida. Ladies and gentlemen, my name is Dale Corson. I am President Emeritus of Cornell University and for the past three years I have been chairman of the Government-University-Industry Research Roundtable. The Demonstration Project grew out of Roundtable activities and we continue to be involved with it.

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[1] See p. 62 for Dr. Corson's prepared statement.

My objective today is to step back from the immediate project and to tell you some of the reasons why the project is important not only to Florida but to the nation as a whole.

I would like to expand somewhat on some of the remarks of Dr. Foote. The future of the country is closely tied to science and technology. We are beset by some large technological problems which must be solved if we are to insure our future. Let me discuss a few of them.

Our supply of energy, for example, is in jeopardy. the world's supply of oil is running out. Fifty years from now it may well be a trickle compared to our needs. There are other sources of energy, but they are either inadequate or they are uncertain. We have vast amounts of coal, but it has a big problem. Burning it contaminates the air with a potentially devastating pollutant, carbon dioxide.

Nuclear power may well become unavailable to us for political reasons. The catastrophic hazard potential and the technologies represented by Three Mile Isle and Chernobyl were never adequately addressed. Nuclear fusion may be our savior, but is too far away. It is decades away at least.

Solar energy appears unlikely to meet more than a relatively small fraction of our needs. Among other things we have no means for getting the energy from where it is abundant to the heavily populated areas. Let me come back to coal and air pollution. The problem is the so-called greenhouse effect. Carbon dioxide in the atmosphere traps some of the radiation that we receive from the sun.

Every year there is a little more pollutant in the atmosphere and every year a little heating takes place. It takes only a few degrees, say five degrees or eight degrees fahrenheit to wreak havoc with our climate.

Changing our climate means changing our food production in serious ways. The carbon dioxide problem is not fully understood. All we know with absolute certainty is that the concentration is increasing from the burning of fossil fuels. We do not know if it is going to be 100 years or 50 years or 25 years before we feel the effect.

I will sight one more example, that of the control of infectious disease. We know the terror that a new disease such as AIDS can produce.

We also know that dramatically effective antibiotic drugs are becoming less effective. Nearly every one of these technological problems is exacerbated by the rising world population doubling every 35 or 40 years. That is the equivalent of one new Bangledesh, some 80 million people, every year.

Let me emphasize that these problems are not small problems that can be ignored. They are potentially devastating to our country and to the world. What do we do to confront these problems effectively? We must learn more about them. We must also teach the public to understand our great technological problem and to be willing to support the political action that it will take to make intelligent moves.

I can also point out that our political actions are all too often crisis driven. We do not see the light until we feel the heat. We must do research on the fundamental science involved. We require

a resevoir of basic understanding across many fields so that when the understanding is needed, it is there ready and waiting.

Let me take one specific example of how research proceeds. I mention that we must be able to transport electric power over long distances if solar energy is ever to play a major role in this country. There is no current technology that is feasible for this purpose. Transmission energy losses are too great.

If we had super conductors, however, in which electrical energy could be transported with no energy loss, we could begin to think about practical engineering systems. The phenomenon of super conductivity was dicovered in Holland before World War I by a man studying the properties of materials at temperatures close to absolute zero, the temperature of liquid helium. It has been studied ever since in many laboratories around the world with gradual progress towards understanding.

Now, suddenly great progress has been made as you know from reading the newspaper the last two or three weeks. Materials have been found in many laboratories in which all resistance to the flow of electricity is lost at temperatures far higher than ever before achieved. There is even speculation about making materials that are super conducting at room temperature. Already, the engineers can begin to think about designing transmission systems to transport electrical energy over long distances using some such new materials as conductors.

This breakthrough did not happen overnight. It happened as a result of work in many countries over 75 years and in many areas of science. Where do we do the type of research that makes such developments possible? We do more than half of it at university laboratories and we do it there for a very good reason. We made a conscious decision at the end of World War II to combine education and basic research. And in making that move, we created perhaps the best graduate education research system in the world.

The fundamental purpose of graduate education is to teach students to solve difficult novel problems. We do that by apprenticing them to those who themselves solve difficult, novel problems, that is, to the best research people we can find, the graduate faculties of our best universities. The federal support system we built in the late forties and early fifties, has served us well but as time has gone on it has been patched up to meet new demands.

More and more of the investigator's time has gone to attending the myriad of requirements now imposed on him. The effectiveness and his morale has been diminished, and more and more of the money available for research has gone to the administration of research. The Florida Demonstration Project was designed to give the federal agency officials an opportunity to try out a streamlined system on a relatively small scale.

We expect the states and universities to follow the federal lead and streamline their own systems.

One final thought, we are losing the race to attract an adequate number of the brightest young people to the science and engineering fields. We must hold out opportunities for these people to work with teachers and masters who are enthusiastic and who are working in exciting fields and who work with the best facilities under the most supportive systems we can devise. The Florida Demon-

stration Project is designed to provide such a streamlined system that will still retain all of the necessary accountability features but which will save money and which will attract and stimulate the enthusiasm of the best teachers, the best students and the best investigators.

Thank you very much, Senator Chiles, for providing the opportunity for all of us to learn more about this demonstration in this hearing today.

Senator CHILES. Thank you very much, Dr. Corson.

Dr. Raub, I know you have been scheduled to speak on the results and you have also been kind enough to agree to talk to us at lunch, but before we leave this topic of expectations, I wonder if you might want to make some comments on behalf of the National Institutes of Health and other federal agencies. What did you think we had here and can you give us any statements on your feelings?

TESTIMONY OF DR. WILLIAM RAUB, DEPUTY DIRECTOR, NATIONAL INSTITUTES OF HEALTH

Dr. RAUB. Thank you, sir. I will be brief. For the NIH and I believe for the other agencies our expectations were essentially identical to what you heard this morning expressed from the university leaders. The prospect of the Florida Demonstration Project was a new means to improve our working relationship with the grantees, especially the universities.

All of us who work in science administration know that it's easy to add administration requirements. It is difficult to eliminate them. And it is very difficult if one agency or one university is working alone on a problem that no one else seems to think is important.

In the case of the Florida Demonstration Project there was an opportunity for a formal and highly visible way to address these problems in concert with other agencies and with some universities. And I believe all of us saw this as too good of an opportunity to pass up.

Senator CHILES. Thank you, sir. Now, we will move on now to Increasing Research Productivity, part of our program. Excuse me. We are going to change our order just a little bit and go into the Streamlining and Administration. We are going to hear from the Honorable Gerald Lewis, who is the State's Comptroller and who together with his office has been tremendously helpful.

TESTIMONY OF GERALD LEWIS, COMPTROLLER, STATE OF FLORIDA

Mr. LEWIS. Thank you, sir. I appreciate your indulgence. The legislature is in session and——

Senator CHILES. It is not a safe time to be away from Tallahassee, I understand.

Mr. LEWIS. Right. I apologize that I will not be able to stay for the whole day. For those who are not familiar with the structure of our government, the Comptroller is the State's chief fiscal officer and is responsible for preauditing all state expenditures. I am also a member of the state cabinet which consists of six elected officials,

who, together with the Governor, sit as the State Board of Education.

I would like to emphasize Senator Chiles, in both those capacities, I am committed at every level of my involvement to the goals of the Florida Demonstration Project. I also applaud you for your leadership in this effort.

Florida, because of its tremendous growth and other unique aspects, is a state the rest of the country looks to when it wants to see solutions to its problems. Our legislative and executive branches because of some of the challenges faced are often at the forefront of solving regional and national problems.

For example, Florida's accounting system is held up as a model to other state governments. We have the only state in which every state agency and every state university is on the same accounting system. This means efficiency for the government and savings for the taxpayer. Our office is proud to be a partner in the Florida Project.

The Project's goal of reducing bureaucratic red tape for university research projects is also a goal and I should say a duty of the Comptroller's office. There is no better way to protect the public money than to keep it from being wasted on paperwork.

There is no better public service than to make sure that money is spent on the intended goal, which is research. I believe there is a fine line between a good thorough job and needless nit picking. It can also be a tough call between a proper amount of freedom and an improper amount of carelessness.

I assure you that while excess paperwork will be decreased and tax dollars will be saved, all public money will still be closely accounted for. We are fortunate in that approved methods and technology will allow us to improve our efficiency and minimize paperwork at the same time.

Again, I appreciate the opportunity to be with you. I thank you especially Senator Chiles and Chancellor Reed for providing national leadership towards making the goal of sponsored research more efficient.

Senator CHILES. We thank you, again, for your statement and your cooperation. I am interested in your response to whether you think that our state fiscal controls are adequate to assure accountability.

Mr. LEWIS. Yes, sir, I think they are. I would like to echo something Chancellor Reed said earlier when he said that when he began to look at the state university system, he found that perhaps there were improvements they could make. I am candid to admit that working on this project we have found the same thing. I know that there are others around the table. We have all worked together on the auditing function. But I think we have had a unique opportunity to see the needs of the universities, the needs of the Board of Regents. I think that is just another important offshoot of this program, Senator Chiles.

We began to re-examine our own agencies to see how we might better serve the needs of those that we are there to serve. So I think working together on that is great.

Senator CHILES. One of the other areas we need to focus on is where we have the federal government and state government doing

the same thing, duplicating the process. How do we try to fix that so that we allow one to do it and the other to check their results you might say, or something, but not have to cross that same ground in two instances.

Mr. LEWIS. Yes, sir. And I just want to assure yourself and everyone here that we are not in the business of perpetuating our own bureaucracy. We are going to work with you towards making this thing work.

Senator CHILES. That is tremendously encouraging. I think we do recognize that while the federal government may be the greater generator, state government is capable of generating paperwork as well.

We certainly excuse you at any time. Thank you very much for your appearance today and the time you took to come last night and to fellowship with us a little bit.

Mr. LEWIS. We thank you.

Senator CHILES. Now, we will hear from Dr. Sid Besvinick, the Associate Provost for External Affairs, University of Miami.

TESTIMONY OF DR. SIDNEY L. BESVINICK, ASSOCIATE PROVOST FOR EXTERNAL AFFAIRS, UNIVERSITY OF MIAMI [1]

Dr. BESVINICK. Thank you. Senator Chiles, ladies and gentlemen, my name is Sid Besvinick. I am the Associate Provost for Research and Dean of the Graduate School at the University of Miami. I too, appreciate the opportunity to present our views on the Florida Demonstration Project, and how we can streamline the administration of our federal grants and contracts under the simplified regulations that have been developed.

I think I am probably going to be talking a little bit more about some of the nitty-gritty than some of my, some of the people who have spoken previously.

As President Foote has indicated we are an independent or private university. While we are similar to our sister institutions in the state, we have one less major level of bureaucracy to contend with. Since we can take care of many of our problems at home; that is, without obtaining Tallahassee approval, we implemented many of the demonstration procedures quite easily.

In fact, the prior approval systems previously developed by the National Science Foundation and National Institutes of Health set the stage for the Florida project. We have had no problems with the new simplified regulations.

We still supervise expenditures carefully to make certain that they are in keeping with good business practices, but we can now act on requests from scientists within a day or two. This saves the time it would take to transmit the request to the agency for an additional endorsement, a step we have to follow many times with other federal agencies.

Incidentally, before coming to this meeting I had the chance to check quickly on some statistics. We have about $58 million worth of federal support at the University of Miami of which about $20 million falls under the Florida Demonstration Project. This repre-

[1] See p. 66 for Dr. Besvinick's prepared statement.

sents at the present time, and it changes from month to month, approximately 160 awards that we have that are active. Our research administration offices say that not once in the past three years has any federal agency refused to honor a request that would normally fall under a prior approval system arrangement. This clearly supports the view that simplifications of administrative procedures is not only desirable, it is workable.

One of the most interesting concepts in the Florida Demonstration Project that Bob Johnson mentioned is that of relatedness. When a scientist has two or more research projects from one or more federal agencies, he or she may request that the projects be considered to be related; that is, that they may deal with different aspects of the investigation, but are representative of the overall research program of the scientists.

When federal offices agree to the request the funds provided by all such related grants can be used as needed as long as the expense is in support of the research program, regardless of line item identification in the original budget request.

The only constraints are that the expenditures should not exceed the total of the awards made nor can they alter the direct/indirect cost provisions. The Florida Demonstration Project has demonstrated that procedures can be simplified, and that the scientists can be relieved of administrative duties which will allow them to spend more time at the bench.

This program, however, only begins to indicate what can be done. The real streamlining and benefits will occur when we take the next logical step. Most of what we have done today has taken responsibility for administration away from the scientist, but it has not appreciably eased the recordkeeping and reporting responsibilities within the administrative offices of the universities.

Our ability to provide necessary information to the federal government would be greatly eased if the following policies which are consistent and implicit in the Florida Demonstration Agreement were adopted and implemented.

First, if universities could submit annual expenditure reports on the basis of a faculty member's research program regardless of the federal sources, starting dates, and the number of awards the scholar has received. At present despite the intent of the FDP, the university must still allocate costs to individual grants.

Administratively, we must still separate expenditures be it after the fact, because each agency wants to be sure its award was used as it was specified.

Secondly, as long as federal agencies do not have an agreed upon, common indirect cost policy, administrative allocation by individual grants will have to continue. We have been pleased that the policy of relatedness has been built into the simplified general terms and conditions of the agreement, but it is difficult to implement that when different agencies have different rules concerning direct and indirect costs.

Third, a single letter of credit for all participating agencies will be extraordinarily beneficial. The funds from each agency could then be put in a common expenditure account against which the principal investigator could draw. This would place the emphasis on the unity of the faculty member's research program and make

it simpler for the scholar to purchase the needed goods and services. It would also make it easier for the University's fiscal management office to report to federal audit agents. Implementation of procedures such as these will do much toward achieving the goals sought by the Florida Demonstration Project.

Universities and conscientious organizations which use good business practices. Relieving them of time-consuming and needless federal requirements will permit them to function more effectively and efficiently. The universities will still do the fiscal reporting job they are expected to do. Federal agencies will receive the end product they desire.

In addition to the post-award fiscal reporting that has been simplified by the Florida Demonstration Project, many of us in the academic community hope that federal agencies will carry the process yet another step further by simplifying the pre-award academic procedures of proposal review.

For example, the standardized proposal format for basic research grants and contracts that could be used in making applications to all federal agencies would make proposal preparation much easier and quicker.

If more multiple year awards were made, scientists would spend less time creating proposals and writing final reports and once again would be able to spend more time in their laboratories.

Finally, for those faculty members that have two or more related research projects, the submission of a single report on their research program which could be provided to multiple agencies would also be very desirable from the academic perspective.

At present the Florida Demonstration Project has permitted the participating universities to make life easier for the scientist by reducing their administrative responsibilities.

It should be noted that this time is usually budgeted as part of the direct costs of the operation of grants and while it may lead to increased efficient use of time on the part of the scientist, it has relatively little impact on the indirect costs associated with an award.

This is especially true of departmental and general research administration costs. Significant savings in these areas are possible if the changes I have described above are put in place. The Florida Demonstration Project has been a refreshing breath of air in the stultifying atmosphere of existing University-Government bureaucracy.

It is a pioneering effort, I do not want to use the word unqualified because so many people have used that before so I would like to change that to say a fantastic success. Most important it has lead us to think about and see other ways in which the regulations and reporting arrangements that govern the interaction between federal agencies and the universities can be streamlined.

I want to add my voice to those who advocate that the Florida Demonstration Project be extended to all universities nationwide and expanded to include all federal funding agencies that offer research support in the form of grants, contracts and cooperative agreements.

I would like to emphasize contracts because I know that there are many universities with a heavy emphasis on the contractual

aspect and if it is only held to research grants, they are going to have trouble. That is part of the reason I was so delighted that President Foote had mentioned about the Office of Naval Research coming in and assisting us.

Senator, we appreciate your deep interest in this project and the support you have given us. I am pleased to answer any questions.

Senator CHILES. Thank you very much, Dr. Besvinick. Now we will call on Dr. George Newkome, the Vice Provost of the office of Research and Graduate Studies at the University of South Florida.

TESTIMONY OF DR. GEORGE R. NEWKOME, VICE PROVOST, OFFICE OF RESEARCH AND GRADUATE STUDIES, UNIVERSITY OF SOUTH FLORIDA [1]

Dr. NEWKOME. Senator Chiles, ladies and gentlemen, my name is George Newkome. I am the Vice Provost for Research and Graduate Studies, Dean of the Graduate School, and also professor of Chemistry at the University of South Florida.

On July 1st, 1986 the Florida Demonstration Project was implemented at the University of South Florida in Tampa, Florida. Before this program could be initiated at USF, a great deal of preliminary planning took place at the federal, state, and university levels. Major meetings were held in Washington, Tallahassee, and Orlando as well as at the University of South Florida.

Representatives of each of the five participating federal agencies attended one of these meetings while the other meetings were attended by key university administrative officers that would be involved in this project. Finance and accounting, procurement, personnel, and research administration as well as key principal investigators were all included.

The University of South Florida is pleased to be part of this pilot program which will change the way universities in the future will administer research programs sponsored by the federal government. We all know that the major research universities throughout the country are closely watching the progress being made in the State of Florida in implementing the Federal Demonstration Project.

We realize that what we are doing in Florida may either move research administration forward or hinder future working relationships between the universities and federal agencies. I know I speak for my colleagues at the sister state universities and University of Miami when I say that we are all dedicated to making this program a success.

As Vice Provost for Research and Graduate Studies at USF, I am the university official responsible for administration, coordination, and growth of the university's diverse research programs. However, I am also an organic chemist with a large research group funded in part from federal sources and can thus look at the benefits of the Federal Demonstration Project from two and sometimes totally different perspectives.

First, as vice provost for research and graduate studies, I can assure you that there has been an increase in research productivity

[1] See p. 69 for Dr. Newkome's prepared statement.

at USF. Although a young university, about 30 years old, USF will exceed 30 million dollars this year. This growth of greater than 30 percent this year is due to an enormous number of factors such as geographic location, a dynamic faculty, a lack of too much bureaucratic red tape and that is mainly because we are young, and also because of this demonstration project.

In response to what the principal investigators perspective of this project was, I have received several comments which reflects the general feelings of researchers. Such as: from our medical center, "The procedures now in effect under the Federal Demonstration Project have been most helpful in the very short period that they have been in force. The most convenient of these relates to procedures for year-end closing of grant budget accounts. It has made for an improved efficiency in the use of grant funds."

From the chairperson in the College of Social Behavorial Sciences, quote: "It is a pleasure to observe that being under the umbrella of the Demonstration Project has had a positive effect on the morale and attitude of principal investigators."

From the College of Public Health: "Allowing the investigators more control over the disbursement of funds is going to improve my ability to accomplish the goals of my research, and reduce the hassles we have had to endure in the past with administrative approvals. Investigators realize that this flexibility is to their benefit, and will be less likely to inappropriately spend grant funds. Thus, financial accountability will be improved."

As an active researcher in the Department of Chemistry, I have been able to personally use several of the demonstration project's main features such as:

(A) During my move from Louisiana State University in Baton Rouge, which is probably the number one bureaucratic state university, to USF, I activated at USF a new grant from the National Science Foundation. Although this was straight forward, little did I know of the unforseen problems to relocate on an on-going research group. The ability to move my federal funds around to cover those problems was a God send.

During those first four to five months, tremendous time was lost due to facility modification, thus the ability to carry over unobligated funds permitted me to higher personnel in the most effective manner.

(B) The ability to buy the pieces of equipment that were needed to support research efforts but were not originally planned for in the proposal since when I submitted the proposal I did not know that I would be conducting the research in new surroundings.

Other items which are available that I have not utilized are:

Allowance of pre-award costs;

Allowance of no-cost extensions; and project relatedness.

I do not want to leave you with the impression that this demonstration project is operating flawlessly. There is still much work to be done such as:

One, the university must make some internal changes to accomodate the authority that the federal sponsors are delegating to the universities. There are needless bureaucratic as well as autocratic restrictions that are imposed by the university and not by the federal sponsors.

I am pleased to say that many of these problems are currently being worked on by the university staffs. Since the project is so young, I am sure that new problems will arise as the procedures are subjected to forthcoming unknowns.

Two, State government must also make changes in its operating procedures especially in the areas of purchasing, procurement, and personal appointments. Again, many of these issues are being pursued with a constant encouragement of the state Comptroller, the Chancellor of the university system, and representatives from the Governor's office—officials at the highest level of government.

These interactions to improve the management of the system are encouraging and will lead to better communication between all parties. This is but the first step to create an efficient working mechanism.

Three, the federal agencies involved in the project should also encourage more federal granting agencies to become involved in the program. I have been told that initial discussions have been held with NASA and Air Force representatives to become part of the project.

To truly be an effective program all federal agencies should be involved. We are grateful, however, that at least five agencies had the courage to become involved in this project. But this is only the beginning in streamlining the administration of sponsored research in our universities.

We look forward to the day when all major research institutions in this country will be operating under the Federal Demonstration Project. I appreciate very much the opportunity to present one researcher's perspective on this very important program. I personally believe that most researchers possessing federal support will be grateful for the procedures and concepts that will be the outcome of this demonstration project.

I commend the state and federal officials that created the project and hope that further federal action will expand this effort to other federal agencies.

Senator CHILES. Thank you very much. And now we are going to hear from the scientists, the people who are actually involved in research. Before we start why don't we just take a standing stretch-in-place break.

We will start off with Dr. Ken Wagener who is the Associate Professor of Chemistry at the University of Florida. We will start off with you making that crosswalk between paperwork and scientific results.

TESTIMONY OF DR. K.B. WAGENER, DEPARTMENT OF CHEMISTRY, UNIVERSITY OF FLORIDA [1]

Dr. WAGENER. It is my pleasure Senator Chiles. I am happy to be here to make comments to you.

I would like to discuss this concept of funding versus spending. That is what we are dealing with here. And then another showing how the Florida Demonstration Project has actually helped us get started in our University's Research Initiative Program in Gaines-

[1] See p. 75 for Dr. Wagener's prepared statement.

ville which is a five year program extending over three departments.

First, I come from industry. I spent 12 years in industry prior to coming to Florida in 1984. So, I can compare for you how spending is done in industry versus academics.

I believe the two functions of funding and spending should be kept separate from one another. It is important that the agencies who view proposals do their job well and select what they believe to be the best shots for us all in terms of research. However, the spending issue should occur at the principal investigator level with full accountability held there, such that we can do our work faster and spend the money more efficiently. And the Florida Demonstration Program is attempting to eliminate much of the paperwork associated with spending money, we do that more quickly.

If it is in place, the spending part of this program actually falls in the hands of the funding agencies. And by eliminating this extra paper work, I think we are more efficient in our spending. For example at the moment I am providing the funding in my household for my family. And I think right now my wife is in the mall taking care of the spending side of this issue.

Senator CHILES. She probably does the auditing as well.

Dr. WAGENER. I do not ask too many questions. There is no question that money is spent faster in industry for research. Perhaps it is more effeciently spent. That is debatable. But certainly it is spent faster. I think that the very reason is that one is closer to the source so to speak than is the case in government.

The second point has to do with the University's Research Initiative Program in Gainesville, which is studying conductive polymers. Our program spans chemistry, physics, and material science. It consists of 17 people involved in this work, seven of us are faculty members. It is my responsibility to look after the program as a whole at the university.

It has fallen underneath the Florida Demonstration Project fortunately. It has permitted us to do at least four things very effectively. I would like to list these for you.

One, we operate with one budget rather than three. It could have been possible that we would have a budget in chemistry, one in material science, and one in physics, each looking after their own items such as travel, expenses, capital acquisition, and so, forth. I do not think I would have taken that job on quite frankly. One budget permits us to handle all of these expenses as a university as it should be and that is where we stand today.

Secondly, I think most importantly, it allows us to retain the proper people to join us in this venture very quickly. We now have everyone on board with the exception of one postdoctoral associate. We managed to bring them on board almost as soon as we knew that we would be funded. We knew that we would be funded roughly in July, perhaps it was August. Once the project was in place, we made job offers. These people have joined us. We are now functioning as a unit on a multi-disciplinary program.

Third, it has permitted us to make rapid decisions about which equipment to acquire. The University's Research Initiative Program is extemely valuable to universities. It provides us with a route to acquire capital equipment expeditiously. One particular

case is a corporation who had made a bid to us for purchase of a four year transform infrared instrument. That is a technique to look at structure of polymers. Their numbers would change on price on October one. The program was replaced September 15. We were able to get a purchase order to them and retain the old price because of this project.

Now, we estimate that saved us roughly 20,000 dollars, and it's just typical of the way industry will act as well. That is a nice comparison. We now have all of the capital equipment that was part of that budget on order or in place for this first fiscal year. I cannot imagine that happening under other circumstances. At least in my brief tenure in Florida I cannot see that being the case. And finally, we have some results to show for our work.

I was at Denver at the American Chemical Society just last week reporting on one of my graduate students results as a part of this program. This is six months later roughly. We managed to get some of this work done. And we have also managed to educate someone. As part of the university's program that we provide we think it is necessary for an educational framework for people in multi-disciplinary fields like polymer chemistry.

The gentleman joined us in September of last year, as a post doctoral associate and he now will be leaving us for Martin Marietta Corporation here in Orlando in roughly five months. He has already obtained a job offer with his strong background in a multidisciplinary area. We are tickled to death with his success.

So in summary, it simply makes things happen faster. I do believe it is important that the principal investigator be held accountable as much as possible for the money he or she spends. I will be happy to answer any questions that you may have.

Senator CHILES. Thank you. That was very interesting. I think what you are saying is you do not mind if you are given the responsibility of trying.

Dr. WAGENER. Absolutely not, definitely not. We expect it.

Senator CHILES. We will hear from Dr. Lawrence Abele, Chairman, Biological Sciences at Florida State University.

TESTIMONY OF DR. LAWRENCE G. ABELE, CHAIRMAN, DEPARTMENT OF BIOLOGICAL SCIENCES, FLORIDA STATE UNIVERSITY [1]

Dr. ABELE. Thank you. Mr. Chairnam. I would like to thank everyone for the opportunity to provide enthusiastic and unqualified support for both the general concept and the specific conditions of the Florida Demonstration Project.

I offer this support as an individual researcher who has utilized a number of the aspects of the program and as a chairman representing a fairly large department in Florida's state university system.

It has been of immense benefit to the faculty and to the department. There are three benefits that result in one overall gain and that is basically scientists and faculty can spend more time in their labs. The paperwork and the problems associated with budget

[1] See p. 76 for Dr. Abele's prepared statement.

transfers are eliminated. Research programs are extremely efficient under the budgeting process of only direct and indirect costs. Larger amounts of money can be saved and can further the amount of research being done.

I think just as important is an attitude problem. In the past there has been frustration, having to do with getting five or six signatures and waiting up to three months to transfer funds between categories particularly if a large piece of equipment breaks down. I think time, efficiency, and attitude have all had a significant increase in the productivity of these faculty.

In my own research program I have been able to utilize both the project relatedness and the time extension carryover aspects. I have three research grants from the National Science Foundation, one of which supports the research of a doctoral student. He had some new developments in his research and required a relatively inexpensive piece of equipment, a diamond knife, for cutting tissue that runs about 2,000 dollars. We had not budgeted for it. It would have been extremely difficult to obtain this under the old system.

With the new system under project relatedness, we can pool funds from the various categories. Allow him to get his knife as quickly as we could get a purchase order and he could continue his research, graduate, and enter the job market on time.

The other value from my point of view as both a chairman and researcher, is the tremendeous reduction in paperwork that the project relatedness brings especially in time and effort reporting on different grants. Now, it is a little easier for me since all of my funds are from the National Science Foundation. But from other agencies it is a big help in that, also. The facultly I can assure you do not like to have, over and over again, time reporting, that splits their time up into small percentages on a number of different branches. It is just unrealistic.

The time extentions allow faculty to take advantage of new technologies. Last year an automated DNA sequencer was developed. I was able to re-budget some money, extend the grant, take advantage of this new technology and run a much stronger grant renewal because of that. When I wrote the proposal in 1985 that technology was simply not available.

Finally, I would like to mention accountability and echo what has been said previously. Over the the past ten years every request that I have sent forward to any federal agency for rebudgeting or other changes in the program have been approved.

In the five years that I have been chairman with 60 or 70 grant proposals in our department, I have seen the exact same thing. Yet, under the old system 45 days, three months, eight or ten signatures was required. It was clearly the system under the demonstration that made the difference.

Senator CHILES. Do you have any way of estimating what the cost would be? Just give a rough kind of estimate.

Dr. ABELE. Well, we say that handling a simple purchase order is 15 dollars. So, you could take 60 proposals, maybe four, or five each: Just in one department probably 50,000 dollars a year or something like that, easily.

And I think that as far as accountability goes, it is in everyone's best interest to expend funds in a really cost efficient and produc-

tive manner. Faculty wants to squeeze a dollar, to get as far as they can out of those research funds. I can assure you there are more than enough regulations, probably too many regulations at state and university levels still. We can still have plenty of accountability.

If I were to be permitted to make a recommendation, I would really like to see the program even if it is not extended across the country, which I very much think it should be, continued in the state of Florida beyond the 1987 date. I would also urge that state agencies when they have contracts and grants follow the same procedures. Just on the side, I mention that the state agencies make the federal government look paper shy when it comes to auditing reports on the state grant, so I would like to see all of this expanded.

I know it will increase the research competitiveness and the scientific enterprise of the country.

Senator CHILES. Thank you very much. Dr. Cory, from your perspective as medical researcher at the University of South Florida, what can you add to this?

TESTIMONY OF DR. JOSEPH G. CORY, DEPARTMENT OF INTERNAL MEDICINE, COLLEGE OF MEDICINE, UNIVERSITY OF SOUTH FLORIDA [1]

Dr. CORY. Thank you, Senator Chiles. For over 20 years I have been a member of the faculty of the University of South Florida in Tampa. In 1967 I received my first grant from the National Cancer Institute and since that time I have been funded without interruption by the National Cancer Institute. Currently my research programs are funded by two grants from the National Cancer Institute. The Florida Demonstration Project has only been in effect for a short period of time in the Florida University System and yet the advantages of this approach have been clearly demonstrated to me.

Flexibility has been introduced into the grant management system for the principal investigator/scientist while accountability for the conduct of the research and for the expenditure of the funds has not been compromised at the level of either the principal investigator/scientist, the Division of Sponsored Research or the Division of Finance and Accounting.

I would like to explain the two major roles of the principal investigator/scientist in the funded research program.

First, the principal investigator has the sole responsibility for the conduct of the research carried out under the grant award. This includes the actual experimentation, the recruitment and direction of research employees, the preparation of progress reports required by the granting agencies, the preparation of research manuscripts for publication, and the purchase of supplies and equipment required for the research.

Second, the principal investigator has the shared responsibility with the Division of Finance and Accounting to expend the funds within the regulations of the State of Florida and the Federal Government in a fiscally responsible manner. Therefore, the principal

[1] See p. 80 for Dr. Cory's prepared statement.

investigator/scientist must not only carry the scientific load for which he was trained and to which he aspires, but must always be an effective administrator with respect to the fiscal aspects of the grant.

The three features of the general terms and conditions of the Florida Demonstration Project which have been most beneficial to my research programs are related to the ability to: select a method of budget control, carry over funds, and to rebudget funds between categories.

In the selection of the method of budget control in the state system without the Florida Demonstration Project, a research grant budget would be divided among five categories.

Within the Florida Demonstration Project the number of budget categories is reduced to two. The fact that three are only two budget categories greatly simplifies my task in maintaining the grant accounts. In addition to the accounting aspects, distinctions of whether an item is an expense item or an equipment item, do not now have to be made to the Division of Procurement.

Items are ordered more quickly and are received earlier. Further, with the reduced number of budget categories under the Florida Demonstration Project, differences between the state regulations and NIH requirements are lessened significantly to the benefit of the principal investigator.

With the carry over of funds under the Florida Demonstration Project unobligated balances can be carried over to the next budget period. This has allowed not only the orderly transition between grant periods but has also improved efficiency. For example, with the carry-over of funds from one grant year into the next, we are given the same internal grant account number at the university so that ordered items not received during the budget period do not have to be cancelled and then reordered under the new account when the new budget year starts.

Another thing happened this year which required the flexibility allowed by the Florida Demonstration Project. My laboratories were relocated from the Medical Center Building to the H. Lee Moffitt Cancer Center and Research Institute at the University. The move took place during the last two weeks in November, 1986 and the first week in December of 1986.

With the Florida Demonstration Project in effect, I was not required to close out the grant account for the periods December 1985 to November 30, 1986, during this very hectic period.

While I realize that this move was a very exceptional circumstance, it was of tremendous help to me to carry over the funds into this current budget year.

Now, how did I use these funds or how will I use these funds? Two of my current research associates will return to Germany in September 1987 after completing post-doctoral training in my laboratory. With the funds that we were allowed to carry over from the 1985 to 1986 budget year to this year, I will be able to recruit at least one of their replacements for July 1987 rather than for October 1987. Being able to bring in a new Postdoctoral Fellow in 1987 will allow for an overlap in personnel.

This overlap provides a time during which the new individual can be become familiar with the research project, the techniques

and the equipment with the assistance from the current research associate. The overlap will be most valuable in allowing the research to progress without interruption. No gap in productivity should be experienced in our research. This is the first time in my 20 years of grant management that I have been able to do this, and I am very pleased about the prospects.

The third aspect, the rebudgeting of funds between categories allowed by the Florida Demonstration Project really only requires slight restrictions. This has not only allowed for ease in accomplishing the goals of the project but has also reduced the paperwork required to purchase the items necessary for the conduct of research.

If a piece of equipment costing more than 1,000 dollars needs to be purchased because of increased needs or replacement due to age but which had not been written into the original grant, the equipment can now be purchased without prior NCI approval. In the past, I had never had such a request refused, but I did have to write detailed explanation for this rebudgeting to purchase a piece of needed equipment.

This takes time, time that could be better used by the principal investigator/scientist to develop the research program. There is little room for abuse with the rebudgeting aspect. No project can be run without personnel, supplies, and equipment. Since all future funding of research grants is based on productivity during the previous grant period, the principal investigator/scientist will expend the grant funds in a manner most consistent with reaching of goals described in the grant proposal.

In summary, my experiences with the Florida Demonstration Project for federal research in the short period of its existence have lead me to conclude that this approach to the fiscal management of research grants greatly aids the principal investigator/scientist in increasing research efficiency and hence productivity.

The relatively minor changes in the administrative procedures allowed by the Florida Demonstration Project have decreased the paperwork for the scientist and yet the accountability to the State of Florida and the Federal Government has not been comprised in any way.

Senator CHILES. Thank you. Dr. Johnson said that he can walk across the campus. Now, how has this research project affected your relationship with the other side of the house, the administators?

Dr. CORY. Doctor Newkome hasn't bothered to come by and see my lab so it is safe.

Senator CHILES. So, you think it has eased your pain there, too.

Dr. CORY. Very much so, sir.

Senator CHILES. We will hear now from Dr. Burgess, the Professor of Anatomy and Cell Biology at the University of Miami School of Medicine.

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TESTIMONY OF DR. DAVID R. BURGESS, PROFESSOR, DEPARTMENT OF ANATOMY AND CELL-BIOLOGY, UNIVERSITY OF MIAMI MEDICAL SCHOOL [1]

Dr. BURGESS. It is a pleasure to be able to relate to you the overwhelming support from the investigators regarding the usefulness of the Florida Demonstration Project.

From my perspective and that of the other investigators I have spoken with, this project is a success in accomplishing what is intended. In fact it is terrific. The researchers on the project relate four major avenues of use of the project which significantly enhance research productivity.

First, the ability to purchase general purpose equipment such as computers, high sensitivity cameras, refrigerators, and many other things. To hire consultants or purchase or repair major equipment with an institutional approval system rather than by application to the Federal agency program director saves months of time and allows more rapid progress in research.

Second, for the unique investigator with multiple awards he or she can for the same reason stated above make unanticipated expenditures from mingling the funds from both grants. For instance, a centrifuge can be used on both projects and can be easily and rapidly paid for from both grants.

Third, the ability to initiate the grant early upon notice of award gives the investigator a head start on the project. In the same regard the ability with rapid local approval to roll money over into the next budget year or extend the grant beyond its funding period is a great benefit.

The bottom line is each research dollar can be stretched further because the investigators are not forced to spend inefficiently at the end of each fiscal year.

Finally, the project does something for the investigator's benefit which is to save time, paperwork, and anxiety. Therefore, more research can be performed while maintaining the same accountability. After all, the investigator still will be measured by the best standard which is the peer review system and will be judged on productivity, creativity, and novelty.

To my mind this project allows the immediate solution to an unintended problem of the way in which grants are funded in this country. Many of us feel fortunate when we receive a five year grant award from NIH. But this award comes with some built in problems. Usually, such a grant was really written about one year prior to the starting date of the award so we are really talking about six years from the inception, peer review, and time for another renewal.

However, most of us who do science for a living really cannot detail for you exactly what experiments we will be doing three, four or five years down the road. We can paint for you and the peer reviewers a broad picture but many of the details need to be filled in as the work progresses. Research is a creative and spontaneous enterprise which responds to the occasional new idea or new methodology.

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[1] See p. 85 for Dr. Burgess' prepared statement.

Once such a new event occurs the scientist wants to move as quickly as possible to capitalize. In many instances, this involves buying a new piece of equipment. In my case this means that I need to buy a powerful microcomputer because we have in my laboratory started doing molecular biology, something that did not enter into my mind four years ago when I wrote the grant.

Now, with the Florida Demonstration Project, I can move very quickly with an OPAS, order the computer, have it working before the old system would have had time to respond to my request. Tremendous time is saved and in my work like most other professions productivity is measured by efficiency, and this system makes for very efficient research.

One unintended problem I see with the Florida Demonstration Project is that we are going to become more efficient in research and we are going to get more research done. Therefore, we are going to need more dollars, Dr. Raub. It is true.

Senator CHILES. You run out of money sooner, huh? [Laughter.]

Dr. BURGESS. I would also like to state that of the investigators that I have spoken with, they are unanimous in encouraging continuation and extension of the project. I know of a couple of investigators who are not on the project and wish that they were for the reasons listed above. The investigators on the project use words like wonderful, terrific, great, time-saving, and efficient. The people in the trenches like the program and hope for its continuation.

Thank you very much for giving me the opportunity to express these views.

Senator CHILES. Thank you, Dr. Burgess. The idea of giving more responsibility and flexibility to the principal investigator, is that the way that industry would do it, Dr. Wagener?

Dr. WAGENER. Yes, sir, definitely, and believe me you answer for it if you do not do the right thing.

Senator CHILES. So, we are talking about having in this instance government do a bit more like business, or in a more businesslike way?

Dr. WAGENER. In terms of handling dollars, I think that is the correct way to do it, yes.

Senator CHILES. Well, I can not help but note that the panelists that have appeared before us and the investigators; everyone seems to think that this thing is working. Have we just selected and brought the people that would say that? I mean is there any investigator out there that says this is crimping the way he was doing things in the past or he thinks this is not going to work? We are not worrying about someone out there wanting to get in the door and say that?

Dr. BURGESS. I have not heard of any investigator complaining about this.

Senator CHILES. You have not heard of any complaints about it?

Dr. BURGESS. No.

Senator CHILES. Very well. All right. We will then go now to our final panel. We will talk about measuring success. We will start with President Criser from the University of Florida to give us his views.

TESTIMONY OF MARSHALL M. CRISER, PRESIDENT, UNIVERSITY OF FLORIDA [1]

Mr. CRISER. I am delighted to have the opportunity to participate in this report on research, improved research efficiency on our campuses. I will take an opportunity briefly to answer the question you just asked.

We have surveyed our faculty on this subject. They uniformally and without exception approved what has been accomplished. But we felt particularly the experienced faculty applauded what was being done here. A concern at one point was whether the research administrators would feel in some way threatened or not happy with this process, but almost without exception they too have applauded this. They see now the value of it. They see their jobs are becoming more important. There are more higher salary positions becoming available because there is less need to have the lower salary positions just to shovel them papers and to take care of red tape.

Senator CHILES. That is interesting.

Mr. CRISER. It is an opinion that also needs to be presented on the record.

Previous witnesses this morning, Senator, have indicated enthusiasm for the implications of the Florida Demonstration Project. Both the universities and the federal sponsors clearly perceive this as an opportunity to increase the efficiency of federally sponsored research which accounts for two thirds of all university research done in the country today.

I would like to relate the reaction of those who conduct our research, our faculty at the University of Florida. Approximately 300 faculty have grants administered under the Florida Demonstration Project. They are 300 of the 590 investigators with at least one federal research grant.

Many of these faculty members have long established research reputations and distinguished records of valuable contributions. Over two hundred of these investigators have more than one active research grant in play today.

All have performed research under administrative procedures prior to the Florida Demonstration Project. Their judgment is based on experience and we report that they are uniformly laudatory of the project and confirm the statements that have been made by these four distinguished faculty members who have testified to you today.

I think in summary it can be best be summed up in the words of one researcher: "There is just more time to do science." For example, under the old procedures almost 70 percent of all grant inquiries took four weeks or more to be answered. Under the Florida Demonstration Project 95 percent are answered in less than two weeks. This improvement in productivity and attitude of the faculty has come about without any loss of accountability for proper expenditure of the federal funds. Faculty remain accountable for everything they sign. State and local procedures help insure sound fiscal management. As one veteran researcher said:

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[1] See p. 87 for Mr. Criser's prepared statement.

"I see local control of grants as facilitating even more fine tuning of grant conduct. I have every reason to believe that those who administer grants such as those persons in our sponsored research office are equally conscientious and competent."

I presented some of this information last week at the annual meeting of the Association of American Universities and I can tell you that the presidents of the major research universities are keenly interested in improving the efficiency of research administration. They want more faculty time spent on research rather than on administration.

The value of the simplified procedures have been confirmed by faculty and they suggest the need to go beyond the areas covered in the current Florida project. For example, the Florida Project only deals with procedures after the grant has been awarded. Significant savings can be obtained by simplification of the proposal or pre-award phase, particularly for continuations of research projects.

We will hear more about these studies from Dr. John Dearden. I just want to say that there are major savings possible if we make prudent reductions in federal regulations for research beyond the Florida project. I am sure that these savings can be estimated and that even rough estimates would show impressive dollar savings in the form of efforts shifted from the research administration to the actual performance of research.

I appreciate the opportunity to testify today and would be happy to furnish answers to any questions.

Senator CHILES. Thank you very much, President Criser. And now we will hear from Dr. John Dearden, the Director of Sponsored Programs at Johns Hopkins University. John, we are delighted to have you down here today.

TESTIMONY OF DR. JOHN DEARDEN, DIRECTOR, UNIVERSITY SPONSORED PROGRAMS OF RESEARCH FOR JOHNS HOPKINS UNIVERSITY [1]

Dr. DEARDEN. I am delighted to be here. Please let me thank you for the opportunity to speak today and present information regarding the Florida Demonstration Project and its implications for federally funded academic research. These implications are important at Johns Hopkins because Hopkins is a research intensive university. Like all American research universities, the great majority of our research activities are funded by the federal government.

Senator CHILES. There are some federal funds that go to Johns Hopkins? [Laughter.]

Dr. DEARDEN. Yes, sir. There are over $400 million a year of federal funds that go to Johns Hopkins. Hopkins, as a research intensive university is predominantly funded by the federal government for research activities.

I will not speak on the importance of university research to the nation's future. I think the other witnesses who have preceded me have done so far more eloquently than I could and besides Senator, your own awareness and knowledge on this issue is well-known.

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[1] See p. 93 for Dr. Dearden's prepared statement.

Johns Hopkins has not directly participated in the Florida Demonstration Project. But we are one of a number of research universities which have become involved with the project partly because of its obvious relevance for us and partly because we believe the project offers an alternative based on cost reduction to recent federal actions to limit administrative cost reimbursements to universities.

The witnesses thus far have described the distinguishing characteristics and results of the project. Clearly, foremost among these is the gain in research productivity which results from reduced administrative burdens on the scientific investigator and the transformation of research administration from mostly paper processing to a more responsive supportive role.

In addition there are the administrative efficiencies which result from standardized simplified administrative systems. Ultimately, these changes result from tacit recognition of the fact, that virtually all research faculty conduct continuous programs of research rather than discrete projects and that such faculty have very high research achievement motivation. This means that each investigator constantly strives to do the best and most research possible within the time and resources available, seeking optimal cost-effectiveness in his or her research.

The further significant characteristic of the Florida Demonstration Project is de facto redefinition of accountability to mean primarily that institutions administer the research enterprise in accordance with sound business practices. The focus of accountability becomes the scientific and technical effort rather than procedural compliance with administrative rules—substance rather than form.

Because of the promise of the project a number of other research universities began to meet with the Florida institutions. As you know at one such meeting last July you invited the attending institutions to develop data on the effects of Federal administrative requirements on research productivity and university administrative costs. That invitation prompted a survey of administrative actions by eight universities; the University of California, Columbia University, Florida State University, University of Florida, the Johns Hopkins University, University of Miami, the State University of New York, and the University of Virginia.

We were fortunate in that Mr. David Meers of the University of California's system had at that time recently designed and tested a protocol for exactly those purposes. The California protocol was designed to develop data to allow time and effort comparisons of federally required administrative processes with what might be dictated solely by sound business practice to maintain on appropriate accountability at the program level.

The participating universities surveyed 5 administrative processes which derived from federal requirements. These are: noncompeting continuation proposals for grants already awarded by the National Institutes of Health, prior approval requested for acquisition of general purpose equipment and foreign travel, salary costs, allocations among the projects of a single investigator, the administrative transfer of expenditures from one grant account to another, and preparation of an annual financial report. Like Bob Johnson of Florida State University I prepared viewgraphs for purposes of il-

lustration diagrammatically how administrative procedures can be simplified by the application of sound business practices opposed to simply trying to meet the procedural requirements or federal requirements.

Instead, I will refer people to Appendix C, of the report and I will just show you the last two elements of that. This indicates steps and processes required for processing one nonpersonnel cost transfer among grants to a single investigator. Application for appropriate standard or good business practices maintaining appropriate accountability can be achieved in a process which can be diagrammed in this fashion. I think the difference is striking.

Senator CHILES. Not quite as many boxes.

Dr. DEARDEN. Each of those really represents time and money. Now, taking the data that were generated by the eight institutions on those five and extrapolating to the national level, we have provided charts or tables in the appendix D of the report.

In those tables there are indicated numbers of hours and dollar figures associated with various transactions. The hours of principal investigator time of the present federal requirements involved in the five administrative transactions at the national level are estimated at over 750,000 hours. For a simplified system, 114,000 hours. The cost of those transactions is estimated for the five administrative transactions studied at the federal level, at 85 million dollars versus 24 million dollars for the simplified system.

Senator CHILES. Now, what amount of the federal projects is this? Is this the total of the federal grant projects?

Dr. DEARDEN. This is extrapolated to an estimated 50,000 annual active awards from federal sources of supported grant awards.

Senator CHILES. 50,000. Now, how would that relate to how many that are out there? I am trying to quantify. I understand that 50,000 can save that much money. Can you give me a ball park figure of it?

Dr. DEARDEN. Well, if you assume that five administrative transactions that we studied constitute no more than 20 percent of the total universe that might be affected——

Senator CHILES. That's what I am getting at, the total universe affected.

Dr. DEARDEN. I think 20 percent is a very conservative estimate that would indicate that on the university side there are possibilities for savings or redirections of resources, resources equivalent to perhaps 300 million dollars annually.

Now, that is just on the university side. That does not take into account corresponding opportunities for cost reduction and savings on the federal side. Obviously if you do not have to generate a piece of paper which is a submission to a federal agency, somebody in the federal agencies does not have to receive it, file it, duplicate it, and all the rest of it.

Senator CHILES. So, we well can be looking at half a billion dollars of savings.

Dr. DEARDEN. I think that is probably a conservative estimate, yes. In fact, the extrapolations show that just for those five administrative transactions, there is a potential for increases in research productivity equivalent to more than 600,000 hours of principal scientific investigator time annually, with a total potential for net re-

direction of federal resources from administration to science equivalent to more than 60 million dollars annually.

It is important to note my use of the term redirection rather than cost reduction or savings. This distinction is based on the fact that many senior and junior research staff supported by federally funded research grants spend a significant amount of time on associated administative activities. Thus, reduction of federal administrative requirements would free such research personnel to do proportionately more research.

For this reason, it is impossible to estimate accurately the potential for actual administrative cost reductions. In many instances a reduction of administrative costs will not save dollars. Scientists will simply do more research. The actual cost reduction potential will vary from university to university as a function of the distribution of administrative responsibilities between technical and administrative personnel.

Even so, the data extrapolations do indicate a potential for actual reduction of administrative costs on the order of tens of millions of dollars and that does not take into account corresponding savings in the federal agencies. And overall because the five administrative transactions surveyed constitute a relatively minor portion of all federal requirements, it is clear that extention of administrative simplification and standardization to the entire federal support system for academic research offers enormous potential gains in national research productivity.

Based on the results of the survey and in conjunction with results from the Florida Demonstration Project, the following recommendations are offered in the survey report:

One, the five federal agencies participating in the Florida Demonstration Project should incorporate the terms and conditions now being used in Florida in their research contracts and cooperative agreements as well as grants.

Two, the Florida Demonstration Project should be expanded to involve additional universities.

Three, the participating agencies and grantee institutions should continue to work with Congress and OMB to further enhance the project through additional reduction and simplification of federal administration requirements.

Four, other federal agencies should join the current five agencies in the project under the same set of terms and conditions.

Five, the participating agencies and universities should continue to work with the Congress and OMB towards the goal of a standardized, simplified, nationwide system for administration of federally supported research.

Six, the federal funding agencies and universities should work with Congress and OMB to devise incentives for optimally efficient research administration at the state and university level.

Senator, that concludes my remarks. Again, I thank you for giving me this opportunity to testify on this important topic and to present the report. I would be happy to answer any questions you may have.

Senator CHILES. Thank you. We appreciate your testimony and presentation of the important results. Now, we will turn to Dr Raub. I understand that you chair a committee of the five partici-

pating agencies. I further understand that your committee is going to be making recommendations to the Office of Management and Budget.

If you could tell us something about the committee's mission and what you can tell us about your plans, and what your timetable will be if you have gone that far.

Dr. RAUB. Thank you very much, Senator. Your understanding is correct. I was asked by the Office of Management and Budget to put together an inter agency committee made up of senior executives of the major research agencies in the federal government starting with the five participating in the Florida Demonstration Project, for the purpose of assessing the implications of the Florida Demonstration Project.

I will be glad to address the general topic. Given the enthusiasm around the table here and I know within the participating institutions and agencies there is a great temptation to declare victory and go home.

From my point of view I think that would be wrong. Clearly more is at stake than some short term victory in the early rounds. In my judgment it is very important that we stay in the ring long enough to be sure we win the fight. Lurking behind several of the immediate issues are some much tougher things. The protocol for assessing the study involves the inner-agency committee, but is not limited to it.

There are basically three steps. Within the project itself, is an organized data collection effort from both the participating universities and the agencies. There is accumulating a data base that understands the anecdotal comments and other expressions of enthusiasm you heard this morning.

Second, as indicated, the Government-University-Industry Research Roundtable at the National Academy of Sciences has agreed to be the focal point for an independent assessment and evaluation of these data and the comments. The interagency committee will take up the recommendations from the Roundtable and the agencies as part of attempting to develop a consensus for recommendation. We have already reached out to other agencies not participating in the project such that by the time the evaluative reports from the Roundtable are in our hands we hope to be well along to developing the insight and we hope the consensus if not unanimity on the part of the agencies.

My understanding of the OMB staff is if we are indeed able to bring in a field consensus on behalf of the participating agencies, and especially something that would not cost a lot of money, that would receive such recommendations very favorably.

Whether these will be manifested as particular changes such as alterations in OMB circular A–110, or other alterations in rule making. I would not try to predict now. But I do share the sense of confidence expressed here this morning that we will be able to make some clear and lasting changes in the administrative rule book.

So far as the future is concerned, there also has been expressed from several corners, the feeling that we must attempt to sustain the momentum of the Florida Demonstration Project in the variety of ways suggested this morning to keep in place the kind of orga-

nized effort to address and to cut back where we can on unnecessary requirements.

I look forward to that continuing opportunity and I will be glad to respond to any questions you may have now.

Senator CHILES. Well, we thank you. Your comments are certainly encouraging to us at this time. I think that it has been an interesting discussion for me this morning. Enlightening. I think we do find that from everything I hear, we do have something that people are enthusiastically behind. Not only Florida investigators, and Florida universities, but also some of our colleagues who are interested in this from the other universities.

Marshal, from your comments it sounded like at your association that they were very interested in the project. If there is an opportunity now to expand the project, it seems that that would make sense to try to broaden it out and to allow a further participation not only of the other states and universities, but also to try to provide further participation from the agencies themselves.

Dr. Corson, we know the Academy is playing a vital role in this. I just wonder in summation, if you can tell us what you see their comments being in this regard.

Mr. CORSON. Thank you. The Research Roundtable built evaluation into the project from the beginning. Under Dr. Phillips leadership as executive director of the Roundtable, we are working with people in Chancellor Reed's office, such as Roberta Mattox.

The system of that evaluation was devised and a questionnaire was circulated among the participating universities. Those results started coming in last September and there have been different stages. We have collected several kinds of data since that time, including information about the impact on productivity and morale of investigators involved. That is now being provided to Dr. Raub's committee as part of their evaluation process. And the Roundtable was committed to pursuing that end. We must have the data when we are asked by OMB the hard questions bearing on evaluation, and when we are asked by your committee and others.

We must have evidence. I want to emphasize two kinds of evidence.

One is the dollar involved that Dr. Dearden stated, set forth in a rather graphic fashion. The other is increase in productivity and the morale and the enthusiasm of investigators involved and of their students.

We want to collect as much of that information in as reliable way as possible. We want to be prepared to answer the hard questions about accountability. We are committed to pursuing that.

Senator CHILES. I want to thank all of you for participating in today's hearing. We will keep the hearing record open for any additional written comments that you might wish to make.

Let me say I think we do have a "search for excellence" going on in our Florida schools of higher education, both public and private. And I intend to write the heads of the five agencies involved and ask them that they extend the demonstration project beyond this year. Also, I want to write some of the other agency heads and ask that they will join the demonstration. It certainly seems that Army and Air Force could link up with the Navy, and we could have a lot of expansion that could take place within the Department's of

Human Services and Agriculture. NASA seems to be a prime candidate, and we would like very much to see them participating.

Thirdly, I intend to communicate with the Director of the Office of Management and Budget and ask that steps be taken to expand the project nationally. Research productivity I think is too important to be a subject that we just have going on in Florida, although I think we are a great place to have that subject start. I want to review our hearing record a little bit more before I make an announcement on new legislation.

I think perhaps we need to gather a few more reports on the evaluation going on but I certainly am leaning to that direction.

I want to just in closing thank Dr. Newton who is out in the audience. Bob, why don't you stand up just a minute. You helped bring this to our attention early on and I am delighted to see you have stopped the practice of falling out of trees that you were starting to get into. [Applause.]

With this we'll close our hearing now.

[Whereupon, the subcommittee recessed to convene at the call of the Chair.]

APPENDIX

TESTIMONY

Before the U. S. Senate Subcommittee on Federal Spending, Budget, and Accounting of the Committee on Governmental Affairs

April 14, 1987
Orlando, Florida

Prepared by

Robert M. Johnson, Vice President
Research and Graduate Studies
Florida State University
Tallahassee, Florida

The burden on researchers and University administrations of managing research programs is increasing. There needs to be a change in the Federal/State/University research support system that will improve the research environment by reducing the burdens on and increase the productivity of our Principal Investigators. In short, we need to develop mechanisms that will reduce the need for PI's themselves to administer their projects.

Over the years, the research system has been overlaid with administrative management and financial procedures. This accumulation results from many individual actions taken (by the Congress, executive Federal agencies, State agencies and even our University) because they seemed necessary or appropriate at the time.

While administrative systems are designed to insure accountability for federal funds, they are often inconsistent with the manner in which university scientists conduct research. A university scientist's research program is long term and multi-faceted, while federal grants and contracts provide short term and partial support for his program. Funding agencies support individual research "projects" rather than the Principal Investigator's research "program". Further, Federal agencies are constrained by statute and regulations to require separate accountability for each project. It is, therefore, not surprising that the Principal Investigator has become burdened by the administrative requirements that accompany each individual project. This increase in administrative effort has been at the expense of research effort. The present system is both inefficient and costly to the University and to the sponsors.

In the last twenty-four months, a new strategy has been developed to produce administrative procedures that are congruent with the needs of university research. These procedures minimize the artificial fragmentation of an investigator's program of research. This strategy will provide greater flexibility to the investigator and to the university for the management of research, while assuring scientific and financial accountability in both the pre-award and post-award stages of the research. This new strategy has come to be known as the Florida Demonstration Project.

We believe that the Florida Demonstration Project is a major step in achieving the goals of administrative simplicity and research productivity. The project allows for accountability at the program level and for the use of funds to fit the needs of a PI's program of research.

The Florida Demonstration Project began April 1, 1986, and was fully implemented by June 1, 1986. Participating in the Project are five Federal R&D agencies, the nine universities of the Florida State University System and the University of Miami. In addition, the Government-University-Industry-Research Roundtable is involved in the evaluation of this standardized and streamlined approach to the federal support of University research. The five Federal agencies are: the Department of Energy; the National Science Foundation; the National Institutes of Health; the Office of Naval Research; and the Department of Agriculture. The Project includes research grants by these Federal agencies to the participating universities, but does not include contracts. All five agencies and ten universities have entered into a Demonstration Agreement and agreed upon a standard set of General Terms and Conditions for the administration of research grants.

The participating universities have been able to simplify and streamline research administration because the General Terms and Conditions:

- Eliminate federal requirements for prior approvals, except for change of scope, investigator and awardee institution.
- Eliminate line item budget controls.
- Allow the universities to approve pre-award costs up to ninety days before award.
- Allow the universities to approve one-time twelve-month no cost time extension.
- Allow universities to carryover funds from one grant period to the next.
- Provide for "project relatedness".

> The relatedness feature of the Demonstration Project is perhaps the most exciting. It provides for the PI to concentrate on his/her research program. For example, the PI will be able to combine his/her research award budgets into a single program budget provided the individual projects are scientifically related. The University and the sponsoring agencies must give their approvals for this step, which effectively eliminates cost transfers among related projects. Furthermore, effort reporting is simplified because effort does not need to be allocated to individual projects. The concept could be used to relate one or more grants or even total programs of Principal Investigators, thus, encouraging inter-disciplinary research to a greater degree than under our present system.

The concepts reflected in the General Terms and Conditions are significant. They represent important changes that the federal agencies have been willing to make. There are other changes that the federal agencies can make to further reduce the administrative burden and to maximize efficiency. The Universities and the State must also make changes in their procedures. Toward this end, the Chancellor of the State University System of Florida, has appointed a Steering Committee which is comprised of individuals from each university, key state agencies, legislative staff, etc. Through this Committee, changes needed at the state level are to be identified. Several changes have already been proposed. One of the most significant proposed changes is the establishment of a local fund for administering research funds instead of managing them through the State treasury. Also, local campus committees are identifying local changes that need to be made to streamline administration and create an environment more conducive to conducting research. Coordination of these several efforts will begin soon with the objective of integrating them to produce a model Federal/State/University System for the support of academic research.

Since its start up in June, it has become clear that the Demonstration Project is very successful. Principal Investigators are enthusiastic. Already they are saying their productivity has increased and their frustration level has decreased. The following excerpts from the evaluation statements provided by investigators speak for themselves:

"The flexibility it allows to principal investigators has enabled them to make more effective use of project funds by spending where the actual needs are rather than where they were projected to be when the proposal was written. And, it certainly simplifies our administrative task, saving us hours of effort and paper work..."

"I spend more time doing science not administration."

"In my opinion the demonstration project is an unqualified success. It provides significantly enhanced flexibility in handling research funds and meeting unexpected situations."

The universities have found Federal administrative requirements reduced for those Federal agencies participating in the project. However, until all Federal agencies are involved in the project, and the General Terms and Conditions are applied to contracts as well as grants the benefits will not reach their maximum potential. Nevertheless, the universities find that the new program is proving to be everything that was predicted. It is streamlining research administration and increasing research productivity.

The Project is scheduled to be continued through December 1987. We will continue to test the procedures and make improvements during that time. We are fortunate that the Demonstration Agreement as written encourages needed flexibility throughout this test period. The Federal agencies and the universities continue to modify and further streamline the General Terms and Conditions.

As we continue in our test period, it is becoming obvious that we need to consider other changes that will ensure success of the Project and its continued life beyond December of 1987. Chancellor Reed will discuss specific recommendations later in the program.

As stated earlier, the Demonstration Project was started with one objective in mind, increasing research productivity by decreasing unnecessary Federal requirements and their associated paperwork. However, as the emphasis on indirect cost has increased over the past months, many have turned to this project as presenting a way of producing real cost reductions. It is evident, in the testing phase of the project that there are cost reductions associated with the elimination of unnecessary regulations. This will produce savings that will allow universities to perform more and better research and create a better research environment for Principal Investigators. Also, it should result in stabilizing indirect costs at universities and prevent them from continuing to escalate. There will, of course, be savings at the Federal level too.

In summary, the Florida Demonstration Project has already proven to be an unqualified success because it has:

- o Increased research productivity at the Principal Investigators level.
- o Eliminated cumbersome Federal, State and University requirements.
- o Reduced Federal, State and University requirements without decreasing accountability for these Federal funds. Universities have the controls needed to ensure accountability.

Testimony will be given during the progress of today's hearing that will provide support for these claims.

We need to return to a more trusting relationship among Federal, State and Local entities. The stewardship of Federal funds is not the sole responsibility of the Federal and State bureaucrats. The universities and Principal Investigators know how to spend their funds effectively on research programs. Principal Investigators know how to accomplish the objectives of their research programs. It is time for responsibility and performance to be located at the same place where the work is being performed.

PARTICIPANTS IN THE FLORIDA DEMONSTRATION PROJECT

THE NATIONAL ACADEMY OF SCIENCES
GOVERNMENT-UNIVERSITY-INDUSTRY RESEARCH ROUNDTABLE
(JUNE 5, 1985)

FEDERAL AGENCIES

NATIONAL SCIENCE FOUNDATION

NATIONAL INSTITUTES OF HEALTH

DEPARTMENT OF ENERGY

OFFICE OF NAVAL RESEARCH

DEPARTMENT OF AGRICULTURE

UNIVERSITIES

THE STATE UNIVERSITY SYSTEM - CHANCELLOR CHARLES REED

FLORIDA STATE UNIVERSITY

UNIVERSITY OF FLORIDA

UNIVERSITY OF SOUTH FLORIDA

FLORIDA AGRICULTURAL AND MECHANICAL UNIVERSITY

UNIVERSITY OF WEST FLORIDA

UNIVERSITY OF CENTRAL FLORIDA

UNIVERSITY OF NORTH FLORIDA

FLORIDA ATLANTIC UNIVERSITY

FLORIDA INTERNATIONAL UNIVERSITY

THE UNIVERSITY OF MIAMI - PRESIDENT THADDEUS FOOTE

THE FLORIDA DEMONSTRATION PROJECT

- DEMONSTRATION AGREEMENT (3/1/86 - 12/31/87)
- GENERAL TERMS AND CONDITIONS
  COVERS ALL RESEARCH GRANTS IN EFFECT ON
  AND SUBSEQUENT TO MARCH 1, 1986

- MAJOR CHANGES
  - o RELATEDNESS - SEVERAL PROJECTS = ONE PROGRAM
  - o FISCAL ACCOUNTABILITY SIMPLIFIED
  - o CARRY-OVER OF FUNDS
  - o AUTHORITY DELEGATED TO UNIVERSITY
    PREAWARD COSTS AND NO-COST TIME EXTENSIONS
  - o REBUDGETING
    P.I. EASE-2 ITEMS-DIRECT COSTS AND INDIRECT COSTS
  - o APPROVAL SIGNATURES - TIME SAVED

APPROACH BY STATE UNIVERSITY SYSTEM

- STATEWIDE STEERING COMMITTEE
- CAMPUS COMMITTEES
- FEDERAL CHANGES
- UNIVERSITY CHANGES
- STATE CHANGES
  - ADMINISTRATIVE
  - STATUTORY
  - SUBCOMMITTEES
    - FINANCIAL
    - SPONSORED RESEARCH
- EVALUATIONS
- EXPANSION

STATEWIDE STEERING COMMITTEE

DR. ROBERT M. JOHNSON (CO-CHAIR)
FLORIDA STATE UNIVERSITY

MS. ROBERTA MADDOX
FLORIDA BOARD OF REGENTS (CO-CHAIR)

DR. DONALD PRICE
UNIVERSITY OF FLORIDA

DR. SIDNEY BESVINICK
UNIVERSITY OF MIAMI

MR. ALBERT HARTLEY
UNIVERSITY OF SOUTH FLORIDA

DR. ALFRED CHAET
UNIVERSITY OF WEST FLORIDA

MR. LOUIS C. ROTUNDO
UNIVERSITY OF CENTRAL FLORIDA

MR. THOMAS CLEMONS
OFFICE OF THE STATE COMPTROLLER

MR. GLENN W. ROBERTSON, JR.
EXECUTIVE OFFICE OF THE GOVERNOR

DR. LU ELLSWORTH
FLORIDA BOARD OF REGENTS

MR. RAY IANNUCCI
FLORIDA HIGH TECHNOLOGY AND INDUSTRY COUNCIL

MR. TONY CARVALHO (EX OFFICIO)
FLORIDA HOUSE OF REPRESENTATIVES

MR. JOHN ANDREW SMITH (EX OFFICIO)
FLORIDA SENATE

DR. ROBERT NEWTON (EX OFFICIO)
GOVERNMENT-UNIVERSITY-INDUSTRY
RESEARCH ROUNDTABLE

MR. ROBERT COAKLEY (EX OFFICIO)
STAFF, SENATOR LAWTON CHILES OFFICE

MR. MILTON GOLDBERG (EX OFFICIO)
COUNCIL ON GOVERNMENTAL RELATIONS

DR. DONALD PHILLIPS (EX OFFICIO)
GOVERNMENT-UNIVERSITY-INDUSTRY
RESEARCH ROUNDTABLE

TABLE 1

GOVERNMENT-WIDE* APPROVALS: CURRENT SYSTEM VS. DEMONSTRATION PROJECT

ITEM	GOV'T-WIDE APPROVALS (FEDERAL PROJECTS NOT IN DEMO. PROJECT)	DEMONSTRATION PROJECT APPROVALS (PROJECTS IN DEMO. PROJECT)
1. GENERAL PURPOSE EQUIPMENT, BUILDINGS AND LAND	X	
2. SPECIAL PURPOSE EQUIPMENT-ITEMS WITH UNIT COST OF $1,000 OR MORE	X	
3. CAPITAL IMPROVEMENTS	X	
4. PRE-AWARD COSTS (UP TO 90 DAYS)	X	FSU APPROVAL ONLY
5. ALTERATION/RENOVATION (SPECIAL)	X	
6. TRAINING COSTS (SCHOLARSHIPS, FELLOWSHIPS AND OTHER STUDENT AID)	X	
7. FOREIGN TRAVEL (EACH TRIP)	X	
8. DOMESTIC TRAVEL IN EXCESS OF 25% OF TRAVEL BUDGET OR $500	X	
9. CHANGE IN SCOPE/OBJECTIVE	X	FSU/AGENCY APPROVAL
10. ADDITIONAL FUNDING	X	FSU/AGENCY APPROVAL
11. TRANSFER FROM TRAINING CATEGORY	X	
12. SUBCONTRACTING FOR PROGRAM WORK	X	
13. NO-COST EXTENSION (UP TO 12 MONTHS)	X	FSU APPROVAL ONLY
14. TERMINATION FOR CONVENIENCE	X	FSU/AGENCY APPROVAL
15. SHARING FEDERALLY OWNED PROPERTY	X	
16. USE OF REAL PROPERTY (LAND, ETC.) IN OTHER PROJECTS	X	
17. DISPOSITION OF FEDERALLY OWNED PROPERTY	X	FSU/AGENCY APPROVAL
18. DISPOSITION OF PROPERTY > $1,000	X	
19. INTEREST ON CAPITAL EXPENDITURES-UNIT COST $10,000 OR MORE	X	
20. FACULTY MEMBERS INTRA-UNIVERSITY CONSULTING EXTRA COMP. ABOVE BASE	X	

*OMB CIRCULARS A-21 AND A-110

TABLE 2
PRIOR APPROVAL REQUIREMENTS
FOR PROJECTS IN THE DEMONSTRATION PROJECT

ITEM	"GENERAL TERMS AND CONDITIONS" "AGENCY-SPECIFIC REQUIREMENTS" NSF	HHS	DOE	ONR	USDA
1. RELATEDNESS	E *	E	E	E	E
2. CHANGE IN OBJECTIVE OR SCOPE	E	E	E	E	E
3. ABSENCE OF OR CHANGE IN P.I.	E	E	E	E	E
4. PREAWARD COSTS-(UP TO 90 DAYS)	I	I	I	I	I
5. TIME EXTENSION (UP TO 12 MONTHS)	I	I	I	I	I
6. TRAVEL TO COMMUNIST BLOC COUNTRIES				E	
7. TRAVEL OF PERSONS FROM COMMUNIST BLOC COUNTRIES				E	
8. REPRODUCTION OF REPORTS BY OTHER THAN DUPLICATION PROCESSES OR WHICH EXCEED 5,000 PER PAGE OR 25,000 IN TOTAL				E	
9. SUBCONTRACTS-FOR MORE THAN 50% OF WORK					E
10. SUBCONTRACTS-TO A FEDERAL AGENCY					E
11. REBUDGET DIRECT COSTS TO INDIRECT COSTS OR VICE VERSA	I	I	I	I	I
12. SINGLE EXPENDITURE OF $25,000 OR 25% OF DIRECT COST BUDGET, WHICHEVER IS GREATER		E			

LEGEND: I(INTERNAL) = REQUIRES UNIVERSITY APPROVAL.
E(EXTERNAL) = REQUIRES UNIVERSITY AND AGENCY APPROVAL.

*ON NSF PROJECTS INVOLVING A SINGLE P.I., RELATEDNESS DETERMINATION REQUIRES ONLY UNIVERSITY APPROVAL.

TIME AND COST STUDY OF SELECTED FEDERAL ADMINISTRATIVE REQUIREMENTS

- MEETING JULY 1986, WASHINGTON, D.C.
- RESEARCH UNIVERSITIES PARTICIPATING
  - FLORIDA STATE UNIVERSITY
  - UNIVERSITY OF FLORIDA
  - UNIVERSITY OF MIAMI
  - UNIVERSITY OF CALIFORNIA SYSTEM
  - COLUMBIA UNIVERSITY
  - JOHNS HOPKINS UNIVERSITY
  - STATE UNIVERSITY OF NEW YORK
  - UNIVERSITY OF VIRGINIA
- SENATOR LAWTON CHILES' LETTER OF MARCH 26, 1987

RECOMMENDATIONS FOR EXPANSION

- ALL FEDERAL RESEARCH AND DEVELOPMENT AGENCIES
- ALL TYPES OF RESEARCH SUPPORT
- ADDITIONAL UNIVERSITIES
- ADDITIONAL FEDERAL CHANGES
    - o SINGLE FEDERAL LETTER OF CREDIT
    - o ELIMINATE STATUTORY COST SHARING
- MORE STATE INVOLVEMENT AND CHANGES

TESTIMONY OF DR. CHARLES B. REED

CHANCELLOR, STATE UNIVERSITY SYSTEM OF FLORIDA

BEFORE A HEARING OF THE UNITED STATES SENATE

SUBCOMMITTEE ON FEDERAL SPENDING, BUDGET AND ACCOUNTING

CONCERNING THE FLORIDA DEMONSTRATION PROJECT

APRIL 14, 1987

ORLANDO, FLORIDA

Good morning.

We are here today in part because of the long-standing interest of Senator Lawton Chiles in basic research, and the critical role it plays in the development of new knowledge, new products, and the constant renewal of our economy.

We are particularly grateful to have been given the opportunity to make some changes in the way our nation administers basic research.

And we greatly appreciate the opportunity to report to you, Senator Chiles, on the success of this program – one which we believe you will be able to take back to Washington, and implement across the nation, at a savings of many, many millions of dollars.

Let me give you an idea of the dimension of the issue, in Florida's universities alone. In the nine state universities, and the University of Miami, the combined research budget is approximately $270 million annually.

Of that total, as Senator Chiles has indicated, approximately $170 million is from federal sources.

The five agencies of the federal government which agreed to participate in the project provide approximately 25 per cent of that total – almost $70 million a year.

The goal of this project is simple: to increase research productivity through simplifying administrative processes.
We are seeking a better match-up between the federal and state financial and administrative controls with the way research is actually done today, by the researchers in our universities.

As we looked for ways to reduce expensive red tape, we kept two objectives in mind.

First, we had to maintain accountability for public funds, and measure and evaluate our results.

Second, we had to maintain strong administration to create a healthy research environment.

Let's take accountability first.

First, we established a steering committee – consisting of representatives of our university research community, the Florida House of Representatives and the Florida Senate, the Executive Office of the Governor, and the Comptroller. This steering committee was given the assignment of directing the project and monitoring its progress.

The Research Roundtable of the National Academy of Sciences undertook responsibility for independently evaluating our results.

President Tad Foote of the University of Miami and I executed an agreement with the five participating agencies – the National Science Foundation, the Department of Energy, the Office of Naval Research, the Department of Agriculture, and the National Institutes of Health.

Second, we added this initiative to a growing list of administrative support systems designed to promote a positive climate for research.

We began in an environment already conducive to supporting, and not hamstringing, research in our universities.

Florida statutes already exempted sponsored research activities from certain practices common to other state agencies, such as the requirement for central clearance in Tallahassee for the nuts and bolts of the competitive bidding process.

Recent legislation has continued this nurturing of research activities in a variety of areas. These range from the creation of a new university personnel system to the exemption of research dollars from the appropriation process. We have developed mechanisms to facilitate the exchange of new technologies resulting from research – and we have developed a new process for improving the pre-audit of payments, producing a once-third improvement in turn-around time with no loss in accountability.

As we began to evaluate our process, however, we found something very interesting, and somewhat humbling. Some of our own practices were as constraining as those at the federal and state level, which we had criticized.

These included duplicate record-keeping systems, multiple internal approvals of researchers' budgets, multiple paychecks to researchers reflecting various projects on which they are working, data collection with no clear management purpose, and separate accounting systems for federal, state and university purposes, where one would suffice. These all represent opportunities for cost reductions.

One very important benefit of this project has been the communication we have developed between the administrators, and the researchers – the people whose hands we untie when we untangle the red tape.

And as we look ahead, we see many additional opportunities for continued improvements. A special task group is continuing to explore with the Comptroller's office still more improvements in the way in which we administer our research funds.

We have developed several pieces of legislation which are currently before the Florida Legislature. And we have asked the Project Steering Committee to develop a five-year plan for continued improvements.

Senator Chiles, you will hear testimony today that we believe will convince you that this Florida Demonstration Project is an unqualified success. The changes demonstrated here must be extended beyond the initial time frame of this single project.

The project must be expanded, to include all participating federal research funding agencies, covering all types of research support, including contracts and cooperative agreements.

And finally, we strongly recommend to you that you extend this process to other universities, throughout the nation.

To that end, we have recommended sixteen specific issues for further consideration – such as establishing a single federal letter of credit for each university, eliminating statutory cost-sharing, standardizing financial reporting, and simplifying proposal application.

This is an effort whose benefits need to be shared – with other agencies, and other universities, and with the future of American research.

I am very grateful for the opportunity to be with you today, and I will be happy to respond to any questions you may have.

REMARKS FOR SENATOR CHILES' COMMITTEE
Orlando, Florida
April 14, 1987

Edward T. Foote II
President, University of Miami
Coral Gables, Florida

Senator Chiles, Ladies and Gentlemen, my name is Edward Thaddeus Foote, President of the University of Miami in Coral Gables, Florida.

It is a pleasure for me to speak with you today about the Florida Demonstration Project, a widely watched effort to reduce the red tape that hampers America's basic research enterprise.

I will spare you a long recitation of this problem. Senator Chiles, you probably know more about it than anyone else in Congress. America's universities appreciate greatly your efforts to stem the flow of needless bureaucratic paperwork thereby helping us do the job of increasing fundamental understanding so badly needed during these complicated times of global challenge.

Still, I want to emphasize the close relationship between the goals of the Florida Demonstration Project and America's need to strengthen its competitive position in the world community.

Our future depends on our ability to create and use new technology. Leadership in technology depends on the expansion of ideas which grow out of basic research. To generate this basic research and the technology we need, scientists must have the time and energy to devote to their work.

A recent National Science Foundation publication noted:

1. Our trade balance, which relies on productivity, is increasingly negative.
2. Productivity in the United States has averaged barely 0.3% in recent years, while our competitors have done 5 to 15 times as well.
3. Productivity depends heavily on new technology, and ours is lagging.

Thus, it was good news to all who value basic research when the Research Round Table of the National Academy of Sciences and five federal agencies asked the State University System of Florida and the University of Miami to collaborate in a project to reduce wasteful requirements and thereby increase the quality and quantity of America's research efforts.

The heart of the Project is a standard set of federal terms and conditions for the support of university research. Its central features are:

--elimination of most federal prior approvals;
--elimination of line item budget controls and budget transfer documents;
--authorization to grantees to allow pre-award costs;
--authorization to grantees to extend completion dates of awards;
--permitting unrestricted carryover of funds on continuing grants; and
--establishment of a process for grantees to relate all projects of one principal investigator. (At the University of Miami there are 25 principal investigators with two or more awards that could be considered related.)

So far, I am pleased to report, the project is proving successful.

It is important to note that this project includes research universities in both the public and private sectors. The business practice rules and procedures are similar in both sectors, but as the private partner in this venture, the University of Miami can be more flexible and adjust practices more quickly than institutions that are part of a larger system. Because of this, our university has been able to put into effect many of the fiscal practices that NSF and NIH had established earlier in their Organizational Prior Approval Systems (OPAS).

In the Florida Demonstration Project, we are now extending those practices to awards granted by the Office of Naval Research, the Department of Energy, and the Department of Agriculture. I want to give special recognition to the Office of Naval Research, which only recently placed a series of basic research contracts at the University of Miami Rosenstiel School under the rules of the Florida Demonstration Project. For researchers whose grants fit within the Florida Demonstration Project, life has become simpler, the approval of changes in the administration of their funds happens more quickly, and far less time is wasted.

Notwithstanding this streamlining, accountability has not been lost, nor has responsible oversight of academic practices and expenditures. We have eliminated many unnecessary and time-consuming requirements for prior approval. The first goal -- that of increasing the time scientists spend in their laboratories -- has been met.

Unfortunately, however, we are not able to use these improved systems with NASA, the Air Force, the Department of Education and other agencies, because they are not part of the Demonstration Project group. As a result, we must maintain records in two different ways, curtailing the effectiveness of the project.

Costs and Cost Reimbursement

The University of Miami has also joined with several institutions in a preliminary analysis of the costs of research, especially as they relate to the Florida Demonstration Project. Research is expensive. We found by removing administrative responsibilities from our researchers, the Project has made it possible for them to re-direct more of their efforts into the production of knowledge. While the data are incomplete and more work needs to be done, the survey results support the following inferences:

1. Federal administrative requirements have significant dollar costs.
2. Federal administrative requirements contribute little to program accountability and often impede research quality and quantity.
3. For universities using sound business practices, many federal requirements are a redundancy that could be eliminated or reduced.
4. Eliminating federal involvement in university fiscal affairs could result in staff reduction and savings in the federal bureaucracy.
5. Eliminating needless controls and modifying other requirements imposed by both governmental agencies and university offices could make still more money available for research.

Already, the Florida Demonstration Project has proved itself worthwhile. The five federal agencies, under the aegis of the Government-University-Industry Research Round Table, have taken strong leadership to propose productive changes in the arrangements for the support of academic research at universities.

We at the University of Miami are privileged to work with our friends in the State University System in so important an undertaking. We are convinced that the implementation of this program will help America remain strong through better science.

April 13, 1987

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TESTIMONY ON FLORIDA FEDERAL GRANT
DEMONSTRATION PROJECT

Orlando, Florida
April 14, 1987

Dale R. Corson

Senator Chiles, ladies and gentlemen. My name is Dale Corson. I am the Presient Emeritus of Cornell University and a physicist by training. For the past three years I have been Chairman of the Government-University-Industry Research Roundtable, under the sponsorship of the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine. The Demonstration Project grew out of Research Roundtable activities and we continue to be heavily involved with it.

My object today is to tell you some of the reasons why the Project is important, not only to the State of Florida but to the nation as a whole.

The future of the country is closely tied to science and technology. This is true in nearly every aspect of national life, whether in economic health and international industrial competitiveness, in national defense or in the health of our people. In attempting to insure our future, we are beset by some large technological problems which must be solved sooner or later--most of them sooner rather than later. Let me discuss a few of them.

Our supply of energy is in jeopardy. We saw something of what can happen when the oil embargo of 1973 hit us. We realized then that we can wait in lines at the gasoline pumps for a long time and then find no gasoline there. The world's supply of oil is running out. 50 years from now it may well be a trickle compared to our needs. By a 100 years it is sure to be. What do we do then?

There are other sources of energy but they are either inadequate or they are uncertain. We have vast amounts of coal--enough to last for perhaps a thousand years--but it has a big problem. Burning it contaminates the air with a potentially devastating pollutant--carbon dioxide. Nuclear power may well become unavailable to us for political reasons. The people do not trust it--and for good reason. The catastrophic hazard potential in the technologies represented by Three Mile Island and Chernobyl were never adequately addressed, although I think they could be.

Nuclear fusion may be our saviour but it is too early to know. It is decades away at best. Solar energy appears unlikely to meet more than a relatively small fraction of our need, say 20%. Solar collectors are inefficient and we have no means for getting the energy from where it is abundant, in the southwest of the United States, for example, to the heavily populated areas.

Let me come back to coal and air pollution. The problem is the

so-called "green house effect". Solar energy enters the atmosphere, heats the earth and is reradiated as infra-red radiation. Carbon dioxide in the atmosphere, however, traps some of this radiation. Every year there is a little more pollutant in the atmosphere and every year a little more heating takes place. After a time the temperature will have gone up a few degrees--and it only takes a few degrees, say five or eight degrees Fahrenheit to wreak havoc with our climate. Changing our climate means changing our food production in potentially serious ways. It also means raising the sea level in catastrophic ways as the polar ice caps melt.

The carbon dioxide problem is not fully understood. All we know with absolute certainty is that the concentration is increasing--from burning fossil fuels. We do not know if it is going to be 100 years or 50 years or 25 years before we feel the effects. We do not know how competing effects--changes in the amount of radiation coming from the sun, for example--will enhance or moderate the pollution effect. To make matters worse, we are now beginning to realize that other climate-altering pollutants, somehow arising from human endeavor, are also increasing their concentrations in the atmosphere with similar effect. Methane is one.

I will cite one more example, that of control of infectious disease. We have made enormous progress in the control of disease in the past 50 years. There is even the prospect of learning enough about cancer to bring even it under control. This could happen in my lifetime--I come from a line of long-lived people. We also know the trauma, the terror even, that a new disease such as AIDS can produce. We also know that our dramatically effective antibiotic drugs are becoming less effective as resistant bacterial strains appear through mutations of the bacteria we thought we had under control. It is not totally absurd to ask if, in historical perspective, the last half of the 20th century will be viewed as an isolated period when human beings were relatively free of infectious disease. I do not take such a pessimistic view but I have heard it expressed.

Nearly every one of these technological problems is exacerbated by the rising world population--doubling every 35 or 40 years. That is the equivalent of one new Bangladesh every year.

What do we do to confront all these problems effectively? We must learn more about them. We must learn how to make more efficient solar collectors, for example, to replace the 15% and 20% ones we have now. We must learn the subtleties of the role the oceans play in absorbing carbon dioxide from the air. We must learn the possibilities for removing the pollutants from the atmosphere--at an economic cost that is feasible.

To address the disease problem we must learn more about the immensely complex chemistry and biology of the molecules and cells that constitute the basis of life and we must learn how to change them and how to control them.

We must teach the public to understand our great technological problems and to be willing to support the political action it will take to make intelligent moves. I can also point out that our political actions are always crisis-driven. We do not see the light until we feel the heat.

How do we go about learning the things we need to know to be able to confront these problems successfully when the crisis comes? We must do research on the fundamental science involved. We cannot walk up to a problem and design a solution on the spot. It requires a reservoir of basic understanding across many fields, so that when the understanding is needed it is there ready and waiting.

Take the efficiency of solar cells. These devices are built on the same basic principles that microelectronic technology is built on. To learn how to make more efficient solar cells we must understand the entire field of solid state physics and chemistry and engineering. We never know where one new idea or one new insight will lead. Sometimes it takes generations to make effective use of some principle or piece of knowledge.

Let me take one specific example of how research proceeds. I mentioned that we must be able to transport electric power over long distances if solar energy is ever to play a major role in this country. There is no current technology that is feasible for this purpose. The transmission energy losses, and the complex transmission phenomena accompanying them, are too great. If we had "superconductors", however, in which electrical energy can be transported with no energy loss we could begin to think about practical engineering systems.

Since before World War I we have known about the phenomenon of superconductivity. It was discovered in Holland before WW I by a man named Kammerling-Onnes, studying the properties of materials at temperatures close to absolute zero--at the temperature of liquio helium. It has been studied ever since, in many laboratories around the world, with gradual progress toward understand it. Now, suddenly, great progress has been made, as you know from reading the newspapers the last two or three weeks. Materials have been found, in many laboratories, in which all resistance to the flow of electricity is lost at temperatures far higher than ever before achieved. There is even speculation about making materials that are superconducting at room temperature. Already the engineers can begin to think about designing transmission systems to transport electrical energy over long distances, using such new materials as conductors.

This "breakthrough" did not happen overnight. It happened as a result of work, in many countries, over 75 years, in many areas of science, extending from solid state physics to ceramics to chemistry.

Where do we do the type of research that makes such developments possible? We do more than half of it in university laboratories and we do

it there for a very good reason.

To do the research successfully we must have the best people we can find and we must educate them in the finest undergraduate and graduate schools we can build. We made a conscious decision at the end of World War II to combine education and basic research, and in making that move we created perhaps the best graduate education-research system in the world.

The fundamental purpose of graduate education is to teach students to solve difficult, novel problems. We do that by apprenticing them to those who are themselves solve difficult, novel problems--i.e. to the best research people we can find--the graduate faculties of our best universities.

The federal support system we built in the late 1940s and early 50s has served us well, but as time has gone on it has been patched up to meet new demands on it, the conditions under which we work have changed, the nature of the world has changed and our system needs rehabilitating. Each agency does business in its own unique way. Regulation after regulation, some of them important some of them not, have burdened the system. More and more of the investigator's time has gone to tending the myriad of requirements now imposed on him. His effectiveness and his morale have been diminished. And more and more of the money available for research has gone into the administration of the research.

The Florida demonstration grew out of Roundtable exploration of these issues and it was designed to give the federal agency officials, who had ideas for large scale improvements, an opportunity to try out a streamlined system on a relatively small scale, with the intent to make the improvements universal once the "bugs" had been eliminated. We expect the states and we expect the universities to follow the federal lead and streamline their own systems.

One final thought: we are losing the race to attract adequate numbers of the brightest young people to the science and engineering fields. We must hold out opportunities for them to work with teachers and mentors who are enthusiastic, who are working in exciting fields and who work with the best facilities under the most supportive systems we can devise.

The Florida demonstration is designed to provide a streamlined system, that still retains all the necessary accountability features, but which will save money and which will attract, and stimulate the enthusiasm of, the best teachers, the best students and the best investigators.

Thank you.

Remarks to be Offered to Senator Chiles at the Florida
Demonstration Project Hearing in Orlando, April 14, 1987

Sidney L. Besvinick

Senator Chiles, Ladies and Gentlemen, my name is Sidney Besvinick. I am the Associate Provost for Research and Dean of the Graduate School at the University of Miami in Coral Gables, Florida.

I appreciate the opportunity to present our views on the Florida Demonstration Project and how we can streamline the administration of our federal grants and contracts under the simplified regulations that have been developed.

As President Foote has indicated, we are an independent, or private, university and, while we are similar to our sister institutions in the State, we have one less major level of bureaucracy to contend with. Since we can take care of many of our problems "at home," that is, without obtaining Tallahassee approval, we implemented many of the demonstration procedures quite easily. In fact, the prior approval systems previously developed by the National Science Foundation and the National Institutes of Health set the stage for the Florida project, and we have had no problems with the new simplified regulations. We still supervise expenditures carefully to make certain they are in keeping with good business practices, but we can act on requests from scientists within a day or two. This saves the time it would take to transmit the request to the agency for an additional endorsement, a step we have to follow many times with other federal agencies. Our research administration offices say that not once in the past three years has any federal agency refused to honor a request that would normally fall under a prior approval system arrangement. This clearly supports the view that simplification of the administrative procedures is not only desirable, but workable.

One of the most interesting concepts in the Florida Demonstration Project is that of relatedness. When a scientist has two or more research projects from one or more federal agencies, he or she may request that the projects be considered to be related, that is, that they deal with different aspects of the investigation, but are representative of the overall research program of the scientist. When federal offices agree to the request, the funds provided in all such related grants can be used as needed as long as the expense is in support of the research program, regardless of line item identification in the original budget requests. The only constraints are that the expenditures should not exceed the total of the awards made nor can they alter the direct/indirect cost provisions.

The Florida Demonstration Project has demonstrated that procedures can be simplified and that scientists can be relieved of administrative duties which will allow them to spend more time at the bench. This program, however, only begins to indicate what can be done. The real streamlining and benefits will occur when we take the next logical step. Most of what we have done to date has taken responsibility for administration away from the scientist, but it has not appreciably eased the record keeping and reporting responsibilities within the administrative offices of the universities. Our ability to provide necessary information to the federal

government would be greatly eased if the following policies which are consistent with and implicit in the Florida Demonstration Agreement were adopted and implemented.

First, universities should be able to submit annual expenditure reports on the basis of a faculty member's research program, regardless of the federal sources, starting dates, and the number of awards the scholar has received. At present, despite the intent of the FDP, the university must still allocate costs to individual grants. Administratively, we must still separate expenditures, although after the fact, because each agency wants to be sure its award was used as it had specified.

Second, as long as federal agencies do not have an agreed-upon common indirect cost policy, administrative allocation by individual grants will have to continue. We have been pleased that the policy of relatedness has been built into the simplified general terms and conditions of the agreement, but it is difficult to implement when different agencies have different rules concerning direct and indirect costs.

Third, a single letter of credit for all participating agencies would be very beneficial. The funds from each agency could then be put in a common expenditure account against which the principal investigator may draw. This would not only place the emphasis on the unity of the faculty member's research program and make it simpler for the scholar to purchase the needed goods and services, it would also make it easier for the university's fiscal management office to report to the federal audit agent.

Implementation of procedures such as these will do much toward achieving the goal sought by the Florida Demonstration Project. Universities are conscientious organizations which use good business practices. Relieving them of time-consuming and needless federal requirements will permit them to function more effectively and efficiently. The universities will still do the fiscal reporting job they are expected to do, and the federal agencies will receive the end products they desire.

In addition to the post-award fiscal reporting that has been simplified by the Florida Demonstration Project, many of us in the academic community hope that the federal agencies will carry the process one step further by simplifying the pre-award academic procedures of proposal review. For example, a standardized proposal format for basic research grants and contracts that could be used in making application to all federal agencies would make proposal preparation much easier and quicker. If more multiple year awards were made, scientists would spend less time creating proposals and writing "final" reports, and once again would be able to spend more time in their laboratories. Finally, for those faculty members who have two or more related research projects, the submission of a single report on their research program which could be provided to multiple agencies, at the same time describing the value of the work performed under each supported grant, would also be very desirable from the academic perspective.

3

At present, the FDP has permitted the participating universities to make life easier for the scientists in the laboratories by reducing their administrative responsibilities. It should be noted that this time is usually budgeted as part of the direct costs of the operation of a grant and, while it may lead to increased efficient use of time on the part of the scientist, it has relatively little impact on the indirect costs associated with an award. This is especially true of departmental and general research administration cost. Significant savings in these areas are possible if the changes I have described above are put in place.

The Florida Demonstration Project has been a refreshing breath of fresh air in the stultifying atmosphere of existing university-government bureaucracy. It is a pioneering effort that has been an unqualified success. Most important, it has led us to think about and see other ways in which the regulations and reporting arrangements that govern the interaction between federal agencies and the universities can be streamlined. I wish to add my voice to those who advocate that the Florida Demonstration Project be extended to all universities nationwide and be expanded to include all federal funding agencies that offer research support in the form of grants, contracts and cooperative agreements.

Senator, we appreciate your deep interest in this project and the support you have given us. I shall be pleased to answer any questions you may have. Thank you.

SLB/msb

April 13, 1987

TESTIMONY

BY

DR. GEORGE R. NEWKOME
VICE PROVOST FOR RESEARCH AND GRADUATE STUDIES
AND PROFESSOR OF CHEMISTRY
UNIVERSITY OF SOUTH FLORIDA
TAMPA, FLORIDA

BEFORE

U.S. SENATOR LAWTON CHILES

ON THE

FLORIDA FEDERAL DEMONSTRATION PROJECT

ON

APRIL 13, 1987

CROWN PLAZA HOTEL
ORLANDO, FLORIDA

MY NAME IS GEORGE R. NEWKOME AND I AM THE VICE PROVOST FOR RESEARCH AND GRADUATE STUDIES AT THE UNIVERSITY OF SOUTH FLORIDA.

ON JULY 1, 1986, THE FLORIDA DEMONSTRATION PROJECT WAS IMPLEMENTED AT THE UNIVERSITY OF SOUTH FLORIDA AT TAMPA, FLORIDA. BEFORE THIS PROGRAM COULD BE INITIATED AT USF, A GREAT DEAL OF PRELIMINARY PLANNING TOOK PLACE AT THE FEDERAL, STATE, AND UNIVERSITY LEVELS. MAJOR MEETINGS WERE HELD IN WASHINGTON, TALLAHASSEE, AND ORLANDO, AS WELL AS AT THE UNIVERSITY OF SOUTH FLORIDA. REPRESENTATIVES FROM EACH OF 5 PARTICIPATING FEDERAL AGENCIES ATTENDED ONE OF THESE MEETINGS, WHILE THE OTHER MEETINGS WERE ATTENDED BY KEY UNIVERSITY ADMINISTRATIVE OFFICIERS, THAT WOULD BE INVOLVED IN THIS PROJECT - i.e., FINANCE AND ACCOUNTING, PROCUREMENT, PERSONNEL, AND RESEARCH ADMINISTRATION, AS WELL AS PRINCIPAL INVESTIGATORS. THE UNIVERSITY OF SOUTH FLORIDA IS PLEASED TO BE PART OF THIS PILOT PROGRAM WHICH WILL CHANGE THE WAY UNIVERSITIES IN THE FUTURE WILL ADMINISTER RESEARCH PROGRAMS SUPPORTED BY THE FEDERAL GOVERNMENT.

WE ALL KNOW THAT THE MAJOR RESEARCH UNIVERSITIES THROUGHOUT THIS COUNTRY ARE CLOSELY WATCHING THE PROGRESS BEING MADE IN THE STATE OF FLORIDA IN IMPLEMENTING THE FEDERAL DEMONSTRATION PROJECT. WE REALIZE THAT WHAT WE ARE DOING IN FLORIDA MAY EITHER MOVE RESEARCH ADMINISTRATION FORWARD OR HINDER FUTURE WORKING RELATIONSHIPS BETWEEN UNIVERSITIES AND FEDERAL AGENCIES. I KNOW I SPEAK FOR MY COLLEAGUES AT THE SISTER STATE UNIVERSITIES AND THE UNIVERSITY OF MIAMI, WHEN I SAY THAT WE ARE ALL DEDICATED TO MAKING THIS PROGRAM A SUCCESS.

AS VICE PROVOST FOR RESEARCH AND GRADUATE STUDIES AT THE UNIVERSITY OF SOUTH FLORIDA, I AM THE UNIVERSITY'S OFFICIAL RESPONSIBLE FOR THE ADMINISTRATION, COORDINATION, AND GROWTH OF THE UNIVERSITY'S DIVERSE RESEARCH PROGRAMS. I AM ALSO AN ORGANIC CHEMIST WITH A LARGE RESEARCH

PROGRAM FUNDED IN PART FROM FEDERAL SOURCES AND CAN THUS CAN LOOK AT THE BENEFITS OF THE FEDERAL DEMONSTRATION PROJECT FROM TWO, SOMETIMES DIFFERING, PERSPECTIVES.

FIRSTLY, AS VICE PROVOST FOR RESEARCH AND GRADUATE STUDIES, I CAN ASSURE YOU THAT THERE HAS BEEN AN INCREASE OF RESEARCH PRODUCTIVITY AT USF. ALTHOUGH A YOUNG UNIVERSITY, LESS THAN 30 YEARS OLD, USF WILL EXCEED $30 MILLION DOLLARS THIS YEAR. THIS GROWTH OF GREATER THAN 30% THIS YEAR IN EXTERNAL SUPPORT IS DUE TO NUMEROUS FACTORS, SUCH AS GEOGRAPHIC LOCATION, A DYNAMIC FACULTY, A LACK OF TOO MUCH BUREAUCRATIC RED TAPE (MAINLY BECAUSE WE'RE YOUNG), BUT ALSO BECAUSE OF THIS DEMONSTRATION PROJECT. IN RESPONSE TO WHAT IS THE PRINCIPAL INVESTIGATORS PERSPECTIVE OF THIS PROJECT, I HAVE RECEIVED SEVERAL COMMENTS WHICH REFLECT THE GENERAL FEELINGS OF THE RESEARCHERS, SUCH AS:

1. FROM OUR MEDICAL CENTER - (QUOTE) "THE PROCEDURES NOW IN EFFECT UNDER THE FEDERAL DEMONSTRATION PROJECT HAVE BEEN MOST HELPFUL IN THE VERY SHORT PERIOD OF TIME THAT THEY HAVE BEEN IN FORCE. THE MOST CONVENIENT OF THESE RELATES TO PROCEDURES FOR YEAR-END CLOSING OF GRANT BUDGET ACCOUNTS. IT HAS MADE FOR AN IMPROVED EFFICIENCY IN THE USE OF GRANT FUNDS" (END OF QUOTE).
2. FROM A CHAIRPERSON IN THE COLLEGE OF SOCIAL AND BEHAVIORAL SCIENCES (QUOTE) "IT IS A PLEASURE TO OBSERVE THAT BEING UNDER THE UMBRELLA OF THE DEMONSTRATION PROJECT HAS HAD A POSITIVE EFFECT ON THE MORALE AND ATTITUDE OF PRINCIPAL INVESTIGATORS" (END OF QUOTE).
3. FROM OUR COLLEGE OF PUBLIC HEALTH (QUOTE) "ALLOWING THE INVESTIGATORS MORE CONTROL OVER THE DISBURSEMENT OF FUNDS IS GOING TO IMPROVE MY ABILITY TO ACCOMPLISH THE GOALS OF MY

RESEARCH, AND REDUCE THE HASSLES WE HAVE HAD TO ENDURE IN THE PAST WITH ADMINISTRATIVE APPROVALS. INVESTIGATORS REALIZE THAT THIS FLEXIBILITY IS TO THEIR BENEFIT, AND WILL BE LESS LIKELY TO INAPPROPRIATELY SPEND GRANT FUNDS. THUS, FINANCIAL ACCOUNTABILITY WILL BE IMPROVED" (END OF QUOTE).

AS AN ACTIVE RESEARCHER IN THE DEPARTMENT OF CHEMISTRY, I HAVE BEEN ABLE TO PERSONALLY USE SEVERAL OF THE DEMONSTRATION PROJECT'S MAIN FEATURES SUCH AS:

A. DURING MY MOVE FROM LOUISIANA STATE UNIVERSITY IN BATON ROUGE TO USF I ACTIVATED AT USF A NEW GRANT FROM THE NATIONAL SCIENCE FOUNDATION. ALTHOUGH THIS WAS STRAIGHT FORWARD, LITTLE DID I KNOW OF THE UNFORESEEN PROBLEMS TO RELOCATE AN ON-GOING RESEARCH GROUP. THE ABILITY TO MOVE MY FEDERAL FUNDS AROUND TO COVER THOSE PROBLEMS WAS A GODSEND. DURING THOSE FIRST 4 TO 5 MONTHS TREMENDOUS TIME WAS LOST DUE TO FACILITY MODIFICATION, THUS THE ABILITY TO CARRY-OVER UNOBLIGATED FUNDS PERMITTED ME HIRE PERSONNEL IN THE MOST EFFECTIVE MANNER.

B. THE ABILITY TO BUY THE PIECES OF EQUIPMENT THAT WERE NEEDED TO SUPPORT THE RESEARCH EFFORT BUT NOT ORIGINALLY PLANNED IN THE PROPOSAL, SINCE WHEN I SUBMITTED THE PROPOSAL I DID NOT KNOW THAT I WOULD BE CONDUCTING THE RESEARCH IN A NEW SURROUNDINGS.

OTHER ITEMS WHICH ARE AVAILABLE BUT THAT I HAVE NOT UTILIZED ARE:

C. ALLOWANCE OF PRE-AWARD COST

D. ALLOWANCE OF NO-COST EXTENSIONS

E. PROJECT RELATEDNESS

I DO NOT WANT TO LEAVE YOU WITH THE IMPRESSION THAT THIS DEMONSTRATION PROJECT IS OPERATING FLAWLESSLY. THERE IS STILL MUCH WORK TO BE DONE, SUCH AS:

1. THE UNIVERSITY MUST MAKE SOME INTERNAL CHANGES TO ACCOMMODATE THE AUTHORITY THAT THE FEDERAL SPONSORS ARE DELEGATING TO THE UNIVERSITIES. THERE ARE NEEDLESS BUREAUCRATIC AS WELL AS AUTOCRATIC RESTRICTIONS THAT ARE IMPOSED BY THE UNIVERSITY AND NOT BY THE FEDERAL SPONSORS. I AM PLEASED TO SAY THAT MANY OF THESE PROBLEMS ARE CURRENTLY BEING WORKED ON BY THE UNIVERSITY STAFF. SINCE THE PROJECT IS SO YOUNG I AM SURE NEW PROBLEMS WILL ARISE AS THE PROCEDURES ARE SUBJECTED TO THE FORTHCOMING UNKNOWNS.
2. THE STATE GOVERNMENT MUST ALSO MAKE CHANGES IN ITS OPERATING PROCEDURES; ESPECIALLY IN THE AREAS OF PURCHASING, PROCUREMENT, AND PERSONNEL APPOINTMENTS. AGAIN, MANY OF THESE ISSUES ARE BEING PURSUED, WITH THE CONSTANT ENCOURAGEMENT OF THE STATE COMPTROLLER, CHANCELLOR OF THE UNIVERSITY SYSTEM, AND REPRESENTATIVES FROM THE GOVERNOR'S OFFICE - OFFICIALS AT THE HIGHEST LEVEL OF GOVERNMENT. THESE INTERACTIONS TO IMPROVE THE MANAGEMENT OF THE SYSTEM IS ENCOURAGING, AND WILL LEAD TO BETTER COMMUNICATION BETWEEN ALL PARTIES, THIS IS BUT THE FIRST STEP TO CREATE AN EFFICIENT WORKING MECHANISM.
3. THE FEDERAL AGENCIES INVOLVED IN THE PROJECT SHOULD ALSO ENCOURAGE MORE FEDERAL GRANTING AGENCIES TO BECOME INVOLVED IN THE PROGRAM. I HAVE BEEN TOLD THAT INITIAL DISCUSSIONS HAVE BEEN HELD WITH NASA AND AIR FORCE REPRESENTATIVES TO BECOME PART OF THE PROJECT. TO TRULY BE AN EFFECTIVE PROGRAM, ALL FEDERAL AGENCIES SHOULD BE INVOLVED; WE ARE GRATEFUL THAT AT LEAST FIVE AGENCIES HAD THE COURAGE TO BECOME INVOLVED IN THIS PROJECT, BUT THIS IS ONLY THE BEGINNING IN STREAMLINING THE ADMINISTRATION OF SPONSORED RESEARCH IN OUR UNIVERSITIES. WE LOOK FORWARD TO THE DAY WHEN ALL MAJOR

RESEARCH INSTITUTIONS IN THIS COUNTRY WILL BE OPERATING UNDER THE FEDERAL DEMONSTRATION PROJECT.

I APPRECIATE VERY MUCH THE OPPORTUNITY TO PRESENT ONE RESEARCHER'S PERSPECTIVE ON THIS MOST IMPORTANT PROGRAM. I PERSONALLY BELIEVE THAT MOST RESEARCHERS POSSESSING FEDERAL SUPPORT WILL BE GRATEFUL FOR THE NEW PROCEDURES AND CONCEPTS THAT WILL BE THE OUTCOME OF THIS DEMONSTRATION PROJECT. I COMMEND THE FEDERAL AND STATE OFFICIALS WHO CREATED THIS PROJECT AND I HOPE THAT FURTHER FEDERAL ACTION WILL EXPAND THIS EFFORT TO OTHER FEDERAL AGENCIES.

THANK YOU AGAIN.

Ref: Orlando 4/14/87

UNIVERSITY OF FLORIDA
GAINESVILLE, 32611

DEPARTMENT OF CHEMISTRY

SUMMARY OF TESIMONY PRESENTED BY K. B. WAGENER TO SENATOR CHILES
AT THE FLORIDA DEMONSTRATION PROJECT HEARING
14 April 1987 Orlando, Florida

POINT 1 - FUNDING and SPENDING. Conceptually, research funding and spending should be viewed as separate functions, and the Florida Demonstration Project (FDP) has provided the opportunity to practice this concept. Funding decisions are being made by government based on research proposal competition. Once these decisions are made, the responsibility for prudent spending lies with the organization conducting the research.

In the absence of the Florida Demonstration Project, a government agency essentially manages both funding AND spending functions, since most budget changes require approval from the agency. Such a system costs time and wastes money. With FDP in place, changes can be made locally thereby expediting the use of funds. The funding/spending concept requires that the spending organization - right down to the principal investigator - be held accountable for spending.

Industry generally practices the funding/spending concept and consequently spends research dollars more easily. Granted, it is easier to do so in industry since spending is done closer "to the source." Nonetheless, the concept should be implemented government-wide with anticipated improvements in productivity and morale.

POINT 2 - THE UNIVERSITY RESEARCH INITIATIVE (URI) AWARD IN GAINESVILLE - AN EXAMPLE OF HOW THE FLORIDA DEMONSTRATION PROJECT HAS HELPED. Last summer the University of Florida received one of the 18 URI Awards selected by DARPA for funding. Since our URI Award is administered by the Office of Naval Research, it falls under the Florida Demonstration Project.

Our research (electrically conductive polymers) is multidisciplinary, spanning three departments on campus - Chemistry, Physics, & Materials Science - and thereby offers a special administrative challenge. Because of FDP, we:

- operate under one budget on campus rather than three. All three departments work from the same budget figures.

- rapidly retained the research people we need. One person, a postdoctoral associate in Materials Science, actually started two weeks before the program officially began. Seventeen people now are on board.

- made rapid decisions regarding capital equipment acquisition. The most expensive instrument ($140,000) was purchased two weeks after the program began, and this quick action avoided a price increase of $20,000. All FY 87 capital equipment is in place.

- have been productive sooner. Our first data was presented last week at the National American Chemical Society meeting. Also, a postdoctoral associate, who joined the project last September, has just received an offer of employment based on his URI experience gained over the past 8 months. He begins his new career at Martin Marietta in Orlando this summer. Clearly, FDP is playing a role in education as well as in research.

EQUAL EMPLOYMENT OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

TESTIMONY

Before the U. S. Senate Subcommittee on Federal Spending, Budget, and Accounting of the Committee on Governmental Affairs

April 14, 1987
Orlando, Florida

Prepared by

Lawrence G. Abele, Chairman
Department of Biological Science
Florida State University
Tallahassee, Florida

The Florida Demonstration Project

• Introduction

Mr. Chairman and distinguished guests. Thank you for this opportunity to provide enthusiastic and unqualified support for both the general concept and specific conditions of the Florida Demonstration Project. I offer this support as an individual researcher and as a chairman representing one of the larger science departments in Florida's State University System.

Overall, the Florida Demonstration Project has been of immense benefit to the research efforts of faculty in the state of Florida and should be a model for the country. Specifically, the benefits fall under the following categories:

(1) scientists have more time to conduct research as a result of the reduction in paperwork,

(2) research programs can operate more efficiently in terms of cost and effort because of the great flexibility the program offers,

(3) there is a much improved attitude on everyone's part resulting from a dramatic decrease in the frustration levels that used to accompany the never-ending paperwork required for minor budget adjustments.

Below I would like to cite a few examples of the project's success.

Project Relatedness

Most faculty have long-term, multifaceted research programs, whereas research grants provide only partial, short-term funding for specific parts of those programs. Therefore, many scientists have more than one research grant each related to the overall research program in the laboratory. In my own case, I have three research grants from the National Science Foundation, one of which supported the research of a graduate student in my laboratory. New developments in his work required a relatively inexpensive piece of equipment (a diamond knife) costing about $2000 that had not been budgeted for, and it would have been extremely difficult to obtain under the old system. Because this research was related to that funded by other grants, we used the "project relatedness" provision to pool funds, allowing us to purchase the knife. The student was able to complete the research successfully, and the knife could be used on other projects in my laboratory.

This provision has also greatly reduced the paperwork related to time and effort reporting.

Other faculty have used this provision to pool small remaining balances in several awards, permitting research to continue that could not have otherwise. Doing so would have been extremely difficult under the old system.

Local Approval of Budgetary Changes

A year can elapse between the submission of a grant request and final approval of the award. During that time the research program continues and new technologies often become available. The ability to shift funds allows scientists to respond to the availability of new technologies and to integrate them into their program.

It is sometimes necessary for scientists, particularly those in the environmental area, to take additional or unplanned field samples requiring the expenditure of travel funds. A faculty member at Florida State University is working on the microbiota of deep aquifers near toxic waste sites. Last year an unexpected result required him to take new samples which he could easily do under the rebudgeting provision.

Time Extensions and Carry-Over Provisions

Shortly after the Florida Demonstration Project was initiated, a new technique was developed that permitted relatively fast sequencing of genetic material. I was able to rebudget easily and to extend the grant period so that these techniques could be integrated into my research program. My research report was much stronger as a result.

It is not uncommon for a postdoctoral associate to resign to take a faculty position before a grant is completed. The ability to extend the grant period allows the researcher time to hire a replacement and complete the research.

Accountability

Over the past 10 years, every request that I have sent to my granting agencies for time extensions, rebudgeting or other changes in an award have been approved. Every other faculty member I have talked to reports a similar experience. Yet these approvals often required 45 days and several local and federal signatures. Clearly, the system under the the Demonstration Project is much more efficient and saves time, money, and frustration for everyone.

It is in everyone's best interest to expend funds in a cost-efficient and productive manner. The continued success of the researcher depends on it. There are more than enough regulations at the university level concerning expenditures.

Recommendations

My experience as both a researcher and a chairman is that the Florida Demonstration Project works beautifully. It has eliminated cumbersome requirements and paperwork while increasing research productivity and morale without decreasing accountability.

If I may, I would urge that the Florida Demonstration Project be extended to all universities and that all federal agencies participate in this valuable concept. It will surely increase both the research competitiveness and the productivity of the scientific enterprises in this country.

Lawrence G. Abele
Department of Biological Science
Florida State University

TESTIMONY

BY

DR. JOSEPH G. CORY
PROFESSOR, INTERNAL MEDICINE
UNIVERSITY OF SOUTH FLORIDA
TAMPA, FLORIDA

BEFORE

U.S. SENATOR LAWTON CHILES

ON THE

FLORIDA FEDERAL DEMONSTRATION PROJECT

ON

APRIL 13, 1987

CROWN PLAZA HOTEL
ORLANDO, FLORIDA

Senator Lawton Chiles
Chairman, Subcommittee on Federal Spending, Budget
and Accounting
Committee on Governmental Affairs
United States Senate
Washington, D.C. 20510-6250

Thank you for the invitation to attend and testify at this hearing on the Florida Demonstration Project for Federal Research.

For over 20 years I have been a member of the faculty of the University of South Florida in Tampa. In September, 1967 I received my first research grant from the National Cancer Institute and since that time I have been funded uninterruptedly by the National Cancer Institute. Currently, my research programs are funded by two grants from the National Cancer Institute.

The Florida Demonstration Project has only been in effect for a short time in the Florida University System and yet the advantages of this approach have already been clearly demonstrated to me. Flexibility has been introduced into the grant management system for the Principal Investigator/ Scientist while accountability for the conduct of the research and for the expenditure of the funds has not been compromised at the level of either the Principal Investigator/Scientist, the Division of Sponsored Research, or the Division of Finance and Accounting.

Three of the central features of the "General Terms and Conditions" of the Florida Demonstration Project have been especially important for us. Before discussing these with you, I would like to explain the two major roles of the Principal Investigator/Scientist in the funded research program. First - the Principal Investigator has the sole responsibility for the conduct of the research carried out under the grant award. This includes the actual experimentation, recruitment and direction of research employees, the preparation of progress reports required by the Granting Agency, the preparation of research manuscripts for publication, and the purchase of supplies and equipment required for the research. Second - the Principal Investigator has the shared responsibility with the Division of Finance and Accounting to expend funds within the regulations of the State of Florida and the Federal Government in a fiscally responsible manner. Therefore, the Principal Investigator/Scientist must not only carry the scientific load for which he was trained and to which he aspires, but also must be an effective administrator with respect to the fiscal aspects of the grant.

The Florida Demonstration Project for Federal Research has greatly simplified, for the Principal Investigator/ Scientist, the administrative procedures required for maintaining a research grant account in accordance with State and Federal Regulations. Since less time is now required to administer a grant account, more time can be used by the Principal Investigator/Scientist for the actual conduct of

research with no increase in expense. As far as I am concerned, efficiency has been greatly enhanced under the Florida Demonstration Project.

The three features of the "General Terms and Conditions" of the Florida Demonstration Project which have been most applicable and beneficial to my research programs are related to the ability to:

1. Select the method of budget control
2. Carry over funds
3. Rebudget funds between categories.

1. Selection of the Method of Budget Control: In the State System without the Florida Demonstration Project, the research grant budget is divided among five categories - salary, other personnel services (hourly wages), expense, OCO (equipment costing more than $100), and overhead. With the Florida Demonstration Project, the number of budget categories is reduced, in my case, to three - salary, direct costs, and overhead. The fact that the budget categories (especially for the direct costs of hourly personnel, supplies, and equipment) are reduced, greatly simplifies my task in maintaining the grant accounts. In addition to the accounting aspect, distinctions, and consequently justifications, of whether an item is an expense item or an OCO item do not have to be made now to the Division of Procurement. Items are ordered more quickly and are received earlier. An example of this would be the situation in which we need to order a replacement column for our high pressure liquid chromatograph - a $300 item. Under the old system we would have had to write an explanation that this column - very special and quite expensive - does not have a defined life expectancy. The more samples run on the column the shorter time the the column will last. Under the new system, Procurement does not have to make the distinction between expense and OCO so the explanation does not have to be written. Further, with the reduced number of budget categories under the Florida Demonstration Project, differences between the State regulations and NIH requirements are lessened significantly to the benefit of the Principal Investigator/Scientist. There are many other examples of how the new Florida Demonstration Project system improves the efficiency of the Principal Investigator/ Scientist in similar simple yet time-consuming procedures.

2. Carry Over of Funds: Under the Florida Demonstration Project, unobligated balances can be carried over to the next budget period. This has allowed not only the orderly transition between grant periods but has improved efficiency. For example, with the carry-over of funds from one grant year into the next, we are given the same internal grant account number so that ordered items not received during the budget period do not have to be cancelled and reordered on the new account number and the funds are not lost to the Principal Investigator/Scientist.

Another thing happened this year which required

the flexibility allowed by the Florida Demonstration Project. My laboratories were relocated from the Medical Center Building to the H. Lee Moffitt Cancer Center and Research Institute. The move took place during the last two weeks in November, 1986 and the first week in December, 1986. With the Florida Demonstration Project in effect, I was not required to close out the grant account for the period December 1, 1985 - November 30, 1986 during this very hectic period. While I realize that this move was a very exceptional circumstance, it was of tremendous help to me that the carry-over of funds aspect was in place.

Two of my current Research Associates, one a Ph.D., the other an M.D., will return to Germany in September, 1987 after completing Post-doctoral training in my laboratory. With the funds that we were allowed to carry over from the 1985-1986 budget year to this year, I will be able to recruit at least one of the replacements for July, 1987 rather than for October, 1987. Being able to bring in the new Post-doctoral Fellow in July, 1987 will allow for an overlap in personnel. This overlap provides a time during which the new individual can become familiar with the research project, techniques, and equipment with assistance from the current Research Associate. The overlap will be most valuable in allowing the research to progress without interruption or down time. No gap in productivity should be experienced in our research. This is the first time in my 20 years of grant management that I have been able to do this. I am very pleased about the prospects.

Another feature of the carry over of funds aspect is that when a new grant is awarded, there is very little lead time. For example, a new grant was funded for me with a start date of April 1, 1986. In February, 1986 I received the "Summary Statement" regarding the status of the grant application. Although the priority score was quite good and the chances for funding excellent, the "Notice of Award" document, dated March 19, 1986 was not received at the University until March 24, 1986. No definite personnel commitments could be made until that date. The Research Associate being recruited was then given a June 1, 1986 start date to comply with State of Florida hiring practices. During this interim, the person's father died of a heart attack so the Research Associate started work on July 3, 1986 - a loss of three months of work time and potentially the loss of funds at the end of the first year. With the flexibility of the Florida Demonstration Project, we have been able to carry these funds over into this budget year. Now orderly planning and expenditure of funds could be made. I will use some of these carry-over funds to hire additional technical support personnel during the Summer of 1987. Progress on the project will have been pushed to a higher level by the extra help (primarily University of South Florida students) during the period.

Again, these are just a few of the examples in which the carry-over of funds has aided us in

increasing our efficiency.

3. Rebudgeting Funds between Categories: The Florida Demonstration Project allows the rebudgeting of funds between categories with only slight restriction. This has not only allowed for ease in accomplishing the goals of the project but has also reduced the paperwork required to purchase the items necessary for the conduct of the research. If a piece of equipment costing more than $1,000 needs to be purchased because of increased need or replacement due to age, but which had not been written into the original grant budget, the equipment can now be purchased without prior NCI approval. In the past I have never had such a request refused, but I did have to write detailed explanations for this rebudgeting to purchase a piece of needed equipment. This takes time, time that could be better used by the Principal Investigator/Scientist to develop the research program. There is little room for abuse with the rebudgeting aspect. No project can be run without personnel, supplies, and equipment. Since all future funding of research grants is based on productivity during the previous grant period, the Principal Investigator/Scientist will expend the grant funds in a manner most consistent with reaching the goals described in the grant proposal.

In summary, my experiences with the Florida Demonstration Project for Federal Research,in the short period of its existence, have led me to conclude that this approach to the fiscal management of research grants greatly aids the Principal Investigator/Scientist in increasing research efficiency and hence productivity. The relatively minor changes in the administrative procedures allowed by the Florida Demonstration Project have decreased the paperwork for the Scientist and yet the accountability to the State of Florida and the Federal Government has not been compromised in any way. The arrangement of the features covered by the Florida Demonstration Project indicates that careful thought was put into the establishment of the Demonstration Agreement. At this time I cannot offer suggestions for improvement as it appears to have been tailor-made for me. It is my wish that this agreement can be adopted on a permanent basis.

Thank you.

UNIVERSITY OF Miami
SCHOOL OF MEDICINE

To: Subcommittee on Federal Spending, Budget,
and Accounting of the Committee on Governmental Affairs

From: Dr. David R. Burgess
Professor of Anaotmy and Cell Biology
University of Miami School of Medicine

Senator Chiles and honorable colleagues, it is a pleasure to be able to relate to you the overwhelming support from the investigators regarding the usefullness of the Florida Demonstration Project. From my perspective and that of the other investigators I have spoken with, this Project is a success and accomplishing what it is intended. In fact, it is terrific!

The researchers on the Project relate four major avenues of use of the Project which significantly enhance research productivity. First, the ability to purchase general purpose equipment (such as computers, high sensitivity cameras, refrigerators,etc), to hire consultants, or purchase or repair major equipment with an institutional approval system rather than by application to the Federal agency program director saves months of time and allows more rapid progress in research. Second, for the unique investigator with multiple awards, he or she can for the same reason stated above make unanticipated expenditures by mingling the funds from both grants. For instance, a centrifuge can be used on both projects and can easily and rapidly paid for from both grants. Third, the ability to initiate the grant early upon notice of award gives the investigator a head start on the project. In the same regard, the ability with rapid local approval to roll money over into the next budget year or extend a grant beyond its funding period is a great benefit. The bottom line is that each research dollar can be stretched further because the investigators are not forced to spend inefficiently at the end of each fiscal year. Finally, the Project does something for the investigator's benefit which is to save time, paperwork, and anxiety. Therefore, more research can be performed while maintaining the same accountability. After all, the investigator still will be measured by the best standard, which is the peer review system, and will be judged on productivity, creativity and novelty.

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To my mind, this Project allows the immediate solution to an unintended problem of the way in which grants are funded in this country. Many of us are feel fortunate when we receive a five year grant award from NIH, but this award comes with some built in problems. Usually, such a grant was really written about one year prior to the starting date of the award so we are really talking about six years from inception, peer review, and time for another renewal. However, most of us who do science for a living really cannot detail for you exactly what experiments we will be doing three, four or five years down the road. We can paint for you, and the peer reviewers, a broad picture but many of the details need to be filled in as the work progresses. Research is a creative and spontaneous enterprise which responds to the occasional ah ha!, new idea, or new methodology. Once such a new event occurs the scientist wants to move as quickly as possible to capitalize. In many instances this involves buying a new piece of equipment. In my case this means that I need to buy a powerful microcomputer because we have in my laboratory started doing molecular biology, something that did not enter into my mind four years ago when I wrote the grant. Now, with the FDP I can move very quickly with an OPAS, order the computer and have it working before the old system would have had time to respond to my request. Tremendous time is saved and in my work like most other professions, productivity is measured by efficiency and this system makes for very efficient research.

I would also like to state that of the investigators I have spoken with, they are unanimous in encouraging continuation and extension of the Project. I know of a couple of investigators who are not on the Project and wish that they were for the reasons listed above. The investigators on the Project use words like "wonderful, terrific, great, time-saving, and efficient." The people in the trenches like the program and hope for its continuation. Thank you very much for giving me the opportunity to express these views.

Remarks to be presented by
Marshall M. Criser, President,
University of Florida

SENATOR CHILES' HEARING
April 14, 1987

Thank you for this opportunity to present information on the Florida Demonstration Project and for your interest in improving research efficiency on our campuses.

Previous witnesses have indicated enthusiasm for the implications of the Florida Demonstration Project. Both the universities and the federal sponsors clearly perceive this as an opportunity to increase the efficiency of federally sponsored research, which accounts for two-thirds of all university research. Today, I would like to relate the reactions of those who conduct the research -- our faculty.

At the University of Florida, approximately 300 faculty have grants administered under the Florida Demonstration Project. Many of these faculty members have long established research reputations and distinguished records of valuable contributions. All have performed research under administrative procedures prior to the Florida Project. Their judgement is based on experience, and I can report that they are uniformly laudatory of the project.

We sought faculty reactions and I have included some of their comments in my submission for the record. Typical comments about the new procedures are that they represent a great step forward in grant administration. Research is more flexible and more creative. Faculty say that the new procedures have reduced by at least half the time spent tracking funds and that the ability to make simple, proper changes without trouble and frustration is of immense value. In the words of one researcher, "there is more time to do science."

For example, under the old procedures, almost 70 percent of all grant inquiries took 4 weeks or more to be answered. Under the Florida Demonstration Project, 95 percent are answered in less than two weeks.

This improvement in productivity and attitude of the faculty has come about without any loss of accountability for proper expenditure of the federal funds. Faculty remain accountable for everything they sign. State and local procedures help insure sound fiscal management. As one veteran researcher said, "I see local control of grants as facilitating even more fine tuning of grant conduct. I have every reason to believe that those who administer grants, such as those persons in our sponsored research office, are equally conscientious and competent."

I presented some of this information at the annual meeting of the Association of American Universities, and I can tell you the presidents of major research universities are keenly interested in improving the efficiency of research administration. They want more faculty time spent on research rather than its administration.

The value of the simplified procedures have been confirmed by faculty and they suggest the need to go beyond the areas covered in the Florida Project. For example, the Florida Project only deals with procedures after the grant has been awarded. Significant savings can be obtained by simplification of the proposal or pre-award phase, particularly for continuations of research projects.

I understand you will hear more about these studies from Dr. John Dearden. I just want to say I believe that there are major savings possible if we make prudent reductions in federal regulations for research, beyond the Florida Project. I am sure these savings can be estimated, and that even rough estimates would show impressive dollar savings in the form of efforts shifted from the research administration to the actual performance of research.

I appreciate the opportunity to testify today, and I would be happy to answer any questions.

February 1987

THE FLORIDA DEMONSTRATION PROJECT

The University of Florida Experience

I. Administration -- The major impact of the FDP on administrative tasks and requirements:

-- There is more time to DO science.

-- The FDP represents the single greatest step forward relating to grant administration that I have witnessed in the 11 years that I have been a faculty member at the University of Florida. This is my fourth R01 grant from NIH, and it has clearly been the easiest. I had a number of difficult budget transfers that needed to be made quickly and easily during the first month. I literally dreaded the thought of having to go through the paperwork that I have become accustomed to when making changes in NIH budgets. This time it was a pleasure!

-- My Department of Energy research project in nucler physics has been a part of the FDP this year. This has proved to be a very positive arrangement, for the FDP has greatly reduced the bureaucratic headaches involved in managing a grant. In the past, requests I have made to DOE for reprogramming funds from one purpose to another have never been refused. However, getting the authorization to reprogram always was a headache, both for me and the DOE officials who had to handle the paperwork. I recall one particular case in which a vital piece of equipment failed just before an important experiment and we had to track down our technical monitor, who was on travel at the time, to get permission to buy a new unit, costing around $2000. This sort of pro-forma bottleneck no longer exists under FDP. I hope AFOSR follows suit.

-- Earlier this year I was awarded an NIH research grant. Unfortunately there was a clerical error in the announcement setting the money for travel under an adjacent heading. Despite many telephone calls to Washington we were unable to get any action to correct the mistake. Finally we were able to make a simple transfer here at the University under the FDP which was effected the next day. The ability to make simple proper changes without trouble and frustration is of immense value.

-- We realized a major savings in our DARPA/URI conducting polymer program through the flexibility possible under the FDP. We planned to purchase an IBM/Bruker Fourier-transform infrared spectrometer with the first year funds, which began in late September. In order to beat an announced price increase it was necessary to place a firm purchase order before 1 October 1986. I believe that under normal circumstances it would have been impossible to place the order so close to the start of a new project. That we were able to do so was of major importance to us. I estimate the savings as around $20,000. Moreover, as we did not have an

extra $20,000 in the budget, the real effect was to enable us to acquire a key piece of equipment that we would otherwise not have been able to afford.

-- It is very difficult to precisely estimate particular costs more than a year in advance of the expenditure. The FDP now makes it possible to make minor adjustments to cover unexpected cost overruns.

-- Purchases of equipment and supplies as needed in support of experiments on nuclear accelerators often have to be made on short notice, due to scheduling requirements on these facilities and the probability that the unexpected emergency nearly always happens. Under the FDP, we can now respond to these situations quickly and efficiently.

-- The proportion of time that a faculty member and/or principal investigator must spend with non-scientific paperwork is astounding. The FDP reduces paperwork, increases flexibility in the use of funds, and accordingly increases the efficiency in the use of these funds. The FDP is a major step in the right direction.

-- The FDP seems to have reduced by at least half the time I must spend in tracking my funds.

-- One of the major advantages of the FDP is the freedom to move monies to categories where there is need. Usually the time frame from application to award results in funds designated for equipment etc. that may possibly have been purchased in the meantime and now the needs are different from those originally designated. Many times a researcher will anticipate needing certain things only to find, once the project is actually started, that he requires other items or different personnel. Under the FDP, such changes are efficiently executed, thereby accelerating the research process.

-- Under the FDP, approval time is greatly reduced for rebudgeting and extensions of time. Previously, requests requiring agency approval took from 30-45 days. This has been reduced to 5 days or less. Local, faster approvals allow faculty needs to be better served, thus improving both faculty and administrator's attitudes toward grants administration.

II. Research Accomplishments -- The major impact of the FDP on the ability to carry out a high-quality and productive research program:

-- All of the research is much more flexible and therefore creative, as it ought to be.

-- The unexpected results from our research created an urgent need for new equipment which was essential for the development of a competitive enzyme-linked immuno assay for quantitation of plasma and platelet HLS antigens. The acquisition of this equipment under the FDP greatly facilitated the progress of our work.

-- The single greatest long-term effect is the increased possibility for collaborative efforts leading to that all-important "critical mass." This is due to 1) more time available to talk with scientists instead of doing paperwork and talking to administrators; and 2) increased flexibility to purchase supplies/equipment with multiple uses among collaborators. Previously, I would buy mine, he would buy his, resulting in duplication and fewer funds for new, creative enterprises.

-- The Relatedness Option under the FDP is an outstanding contribution to productive research. A principal investigator in chemicl engineering is using this option on his NSF and DOE grants. Both projects are related to the theoretical and computational modeling of the properties of solutions. The DOE work emphasizes using fluctuation solutions theory for describing a wide variety of properties and systems and includes molecular dynamics simulation to determine molecular structure and properties. The NSF work focuses on a particular class of systems, surfactant micelles, using molecular modeling and molecular dynamics simulations. Both projects are of interest to general engineering science and practice as well as for specific application to energy related activities. In fact, the NSF work grew out of research sponsored by DOE for enhanced oil recovery.
At present workers on both projects are familiar with both areas. The greatest benefit of establishing relatedness is that the molecular dynamics simulation efforts can be handled with more felxible accounting and lead to easier communication with external computers.

-- The FDP allows flexible creativity without a bureaucratically imposed "damper" on the intuitive and deductive processes that underliie scientific investigation. The management procedures are now easier and the morale of all involved, secretaries to researchers, is greatly improved.

-- The FDP allows the principal investigators involved in the daily activities of funded projects to make immediate decisions on the best way to accomplish the goals of the research objectives in the fastest, most efficient fashion. Greater flexibility makes it easier to find a solution to problems that arise during the term of a project.

III. Attitude -- The major impact of the FDP on attitudes toward the federal post-award administrative system, federal program officers, and local research administrators:

-- My attitude is much more favorable under the FDP because the management requirements are congruent with the conduct of research.

-- The FDP couldn't be any better. The requirements are perfect and relationships are just the way they should be--very helpful so as to see that science is done.

-- I am favorably impressed that the government would relinquish this much of its micromanagement lever. The new freedom under the FDP is far more conducive to rapid progress in research. My relations with my program officers have always been excellent and I have never felt inclined

to criticize them for the system. As researchers we now have to spend less time hassling local administrators and minor bureaucrats to get to do what we know needs to be done.

-- The impact of the FDP is entirely positive. It is the greatest step forward concerning grant administration. I am anxious to see all other investigators benefit from the FDP.

IV. Accountability -- The impact of the FDP on scientific and financial accountability:

-- I certainly see no reason to expect any decrease in fiscal or scientific accountability or responsibility. Scientists know that whether they can get another grant is going to depend heavily upon how they conduct the one(s) they currently have, the results obtained, and in general, their scientific productivity as evidenced by publication from the research in recognized scientific journals. I have every reason to believe that those who administer grants, such as persons in our sponsored research office, are eqully conscientious and competent. I see local control of grants as facilitating even more fine tuning of grant conduct. This will result in more productive scientific accomplishments and more efficient time management on the part of both scientific investigators and fiscal officers.

-- Most funded research is long-term. Most productive programs receive renewals, while unproductive programs do not. If a funded project is mismanaged, it will never be productive. The federal agencies would not know this until the project was completed under either the old system or under the FDP. Accountability is maintained by the peer review process when the grant comes up for renewal. If the funds were used wisely and the project has produced important results, then it may be renewed. If it was not a financially sound program, the project will not be renewed and the government will not continue to throw good money after bad. If, during the peer review, evidence is uncovered to suggest serious mismanagement, then the principal investigator, or the responsible parties, could be barred from receiving further federal support.

-- By requiring that we use local procedures to alter the disposition of funds, we are assigning our names, our most important assets as scientists. (What does it do to a career to have a name on a bad piece of research published in a journal?) We remain accountable for everything that we sign.

-- Accountability is maintained through the integrity of the investigator and his/her departmental administrators. Results are the bottom line. If money is spent foolishly, results will fade, this will soon be evident to all, and funding will terminate.

-- If financial accountability increased any more, it would be impossible to get research done. State and local procedures are more than sufficient for sound fiscal management.

STATEMENT

Senate Hearing on University Research Productivity
Senate Committee on Government Affairs
Senator Lawton Chiles, Hearing Chairman

April 14, 1987
Orlando, Florida

By: John Dearden, Director
University Sponsored Projects Administration
The Johns Hopkins University

88-118 0 - 88 - 4

Senator Chiles, Distinguished Guests, Ladies and Gentlemen. My name is John Dearden and I am Director of University Sponsored Projects Administration at The Johns Hopkins University. Please let me thank you for the opportunity to speak today and present information regarding the Florida Demonstration Project and its implications for federally funded academic research. These are important to Johns Hopkins because Hopkins is a research-intensive university, and like all American research universities, the great majority of our research activities are funded by the Federal Government. I shall not speak on the importance of university research to our nation's future; the witnesses who have preceded me have done so far more eloquently than I could, and besides, Senator, your own awareness and knowledge of that issue is well-known.

Johns Hopkins has not yet directly participated in the Florida Demonstration Project. But we are one of a number of research universities which have become involved with the Project partly because of its obvious relevance for us, and partly because we believe the Project offers an alternative, based on cost reduction, to recent federal actions to limit administrative cost reimbursements to universities.

The witnesses thus far have described the distinguishing characteristics and apparent results of the Project. Clearly, foremost among these is the gain in research productivity which results from reduced administrative burdens on the scientific investigator and the transformation of research administration from mostly paper processing to a more responsive, supportive role. In addition, there are the administrative efficiencies which result from standardized simplified administrative systems. Ultimately, these changes result from tacit recognition of the fact that virtually all research faculty conduct continuous programs of research, rather than discrete projects, and all have very high research-achievement motivation. Thus, each investigator constantly strives to do the best and most research possible within the time and resources available, seeking optimal cost-effectiveness. A further significant characteristic of the Florida Demonstration Project is a <u>de facto</u> redefinition of accountability to mean primarily that institutions administer the research enterprise in accordance with sound business practices. That institutions manage to assure that funds are expended for support of the scientific or technical scope of work agreed to by the sponsor, and are not expended for purposes specified as unallowable. Thus, the focus of accountability is the scientific and technical effort, rather than procedural compliance with administrative rules - substance, rather than form.

Because of the promise of the Project, a number of other research universities began to meet with the Florida institutions. As you know, at one such meeting last July, you invited the attending institutions to develop data on the effects of federal administrative requirements on research productivity and university administrative costs. That invitation prompted a survey of administrative actions by eight universities: the University of California; Columbia University; Florida State University; the University of Florida; The Johns Hopkins University; the University of Miami; The State University of New York; and the University of Virginia. We were fortunate in that Mr. David Mears of the University of California system had at that time recently designed and tested a protocol for exactly those purposes.

The California protocol was designed to develop data that allow time and effort comparisons of federally required administrative processes with what might be dictated solely by sound business practice. The following charts from the University of California present such comparisons, based on the Florida Project, in the form of diagrams. (See Charts 1-6) The other institutions adapted the California protocol to accommodate local conditions, and produced survey data on a set of five administrative actions. Selected summary data from those surveys are shown in table 1. Table 2 shows a projection of those data to the national level for the actions surveyed. Table 3 displays comparable costs for a system of adequate, sound business practices based on the principles of the Florida Demonstration Project. Table 4 shows how application of those principles, when compared to current practices mandated by present federal requirements, holds the potential for an increase in research productivity <u>equivalent to more than 600 thousand hours of principle scientific investigator time</u>, with a total potential for net redirection of federal resources from administration to science equivalent to <u>more than $60 million dollars annually</u>. It is important to note my use of the term <u>redirection</u>, rather than cost reduction or savings. This distinction is based on the fact that many senior and junior research staff supported by federally funded research grants expend a significant amount of time on associated administrative activities. Thus, reduction of federal administrative requirements would free such research personnel to do proportionately more research. For this reason, it is impossible to estimate accurately the potential for actual administrative cost reductions. In many instances, a reduction of administrative cost will not save dollars; scientists will simply do more research. The actual cost reduction potential will vary from university to university, as a function of the distribution of administrative responsibilities between technical and administrative personnel. Even so, the data extrapolations do indicate a potential for actual reduction of administrative costs on the order of tens of millions of dollars, and that does not take into account corresponding savings in the federal agencies. And overall, because the five administrative transactions surveyed constitute a relatively minor proportion of

all federal requirements, it is clear that extension of administrative simplification and standardization to the entire federal support system for academic research offers enormous potential gains in national research productivity.

Based on the results of the survey, and in conjunction with results from the Florida Demonstration Project, the following recommendations are offered in the survey report:

RECOMMENDATION 1: The five federal agencies participating in the Florida Demonstration Project should incorporate the terms and conditions now being used in Florida in their research contracts and cooperative agreements as well as grants.

RECOMMENDATION 2: The Florida Demonstration Project should be expanded to involve additional universities.

RECOMMENDATION 3. The participating agencies and grantee institutions should continue to work with Congress and OMB to further enhance the Project through additional reduction and simplification of federal administrative requirements.

RECOMMENDATION 4: Other federal agencies should join the current five agencies in the Project, under the same set of terms and conditions.

RECOMMENDATION 5: The participating agencies and universities should continue to work with the Congress and OMB towards the goal of a standardized, simplified nation-wide system for administration of federally supported research.

RECOMMENDATION 6: The federal funding agencies and universities should work with Congress and OMB to devise incentives for optimally efficient research administration at the state and university level.

Senator, that concludes my remarks. Again, I thank you for giving me the opportunity to testify on this important topic and to present the report. I would be happy to answer any questions that you may have.

CHART 1

CHARGING FOREIGN TRAVEL TO AN NSF GRANT

CURRENT PROCEDURES

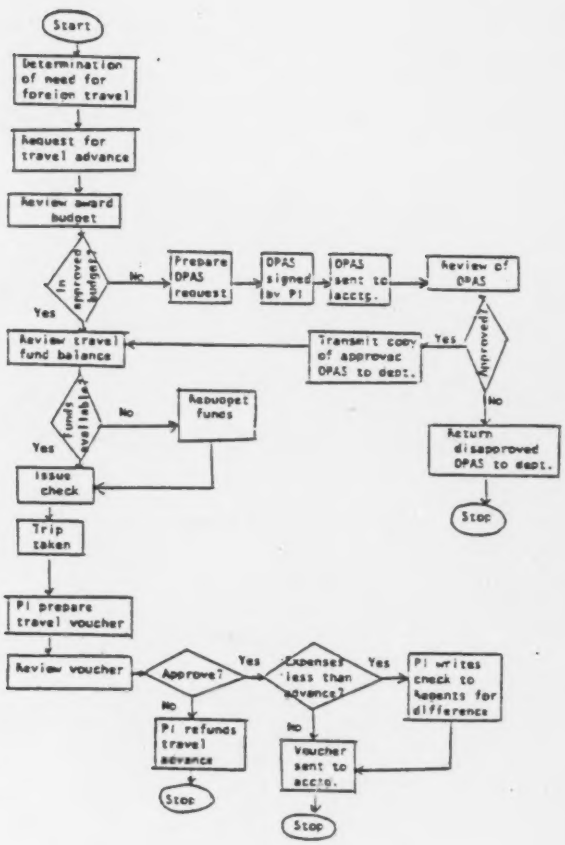


CHART 2

CHARGING FOREIGN TRAVEL TO AN NSF GRANT

PROCEDURES REMAINING AFTER ELIMINATION OF PRIOR APPROVAL REQUIREMENTS

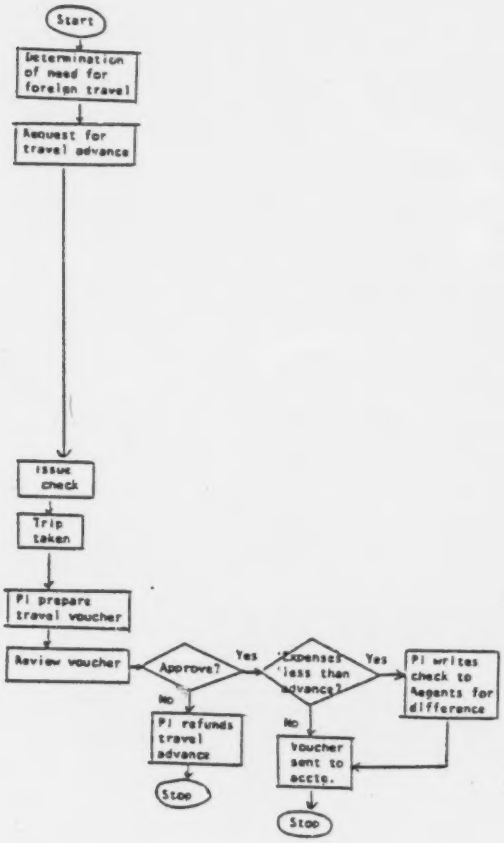


CHART 3

PURCHASING GENERAL PURPOSE EQUIPMENT UNDER AN NSF GRANT

CURRENT PROCEDURES

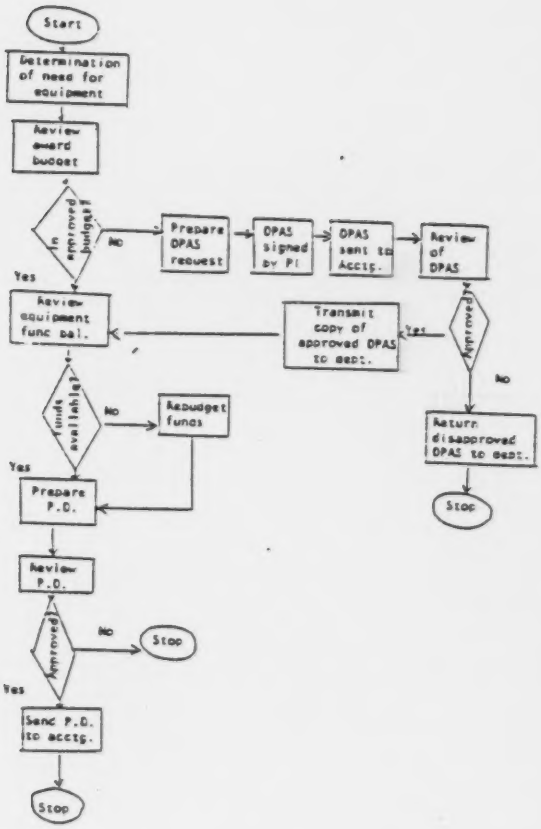


CHART 4

PURCHASING GENERAL PURPOSE EQUIPMENT UNDER AN NSF GRANT

PROCEDURES REMAINING AFTER ELIMINATION OF PRIOR APPROVAL REQUIREMENTS

CHART 5

PROCESSING ONE NON-PERSONNEL COST TRANSFER BETWEEN TWO GRANTS

CURRENT PROCEDURES

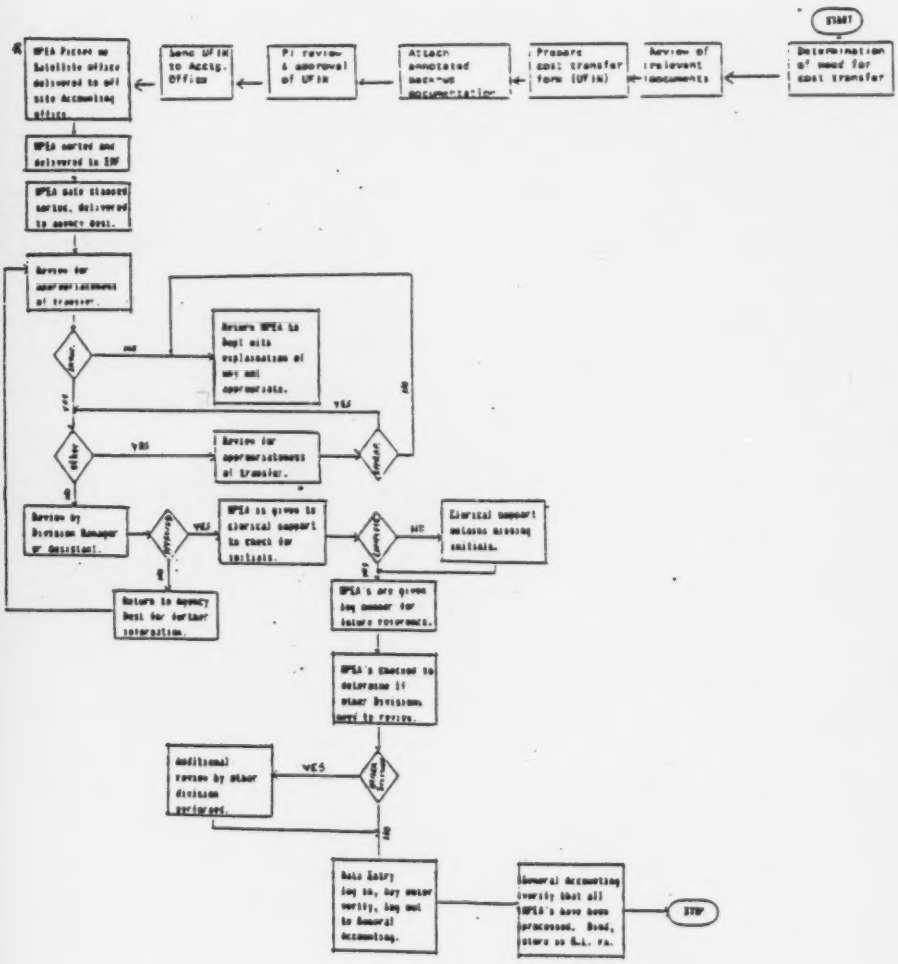
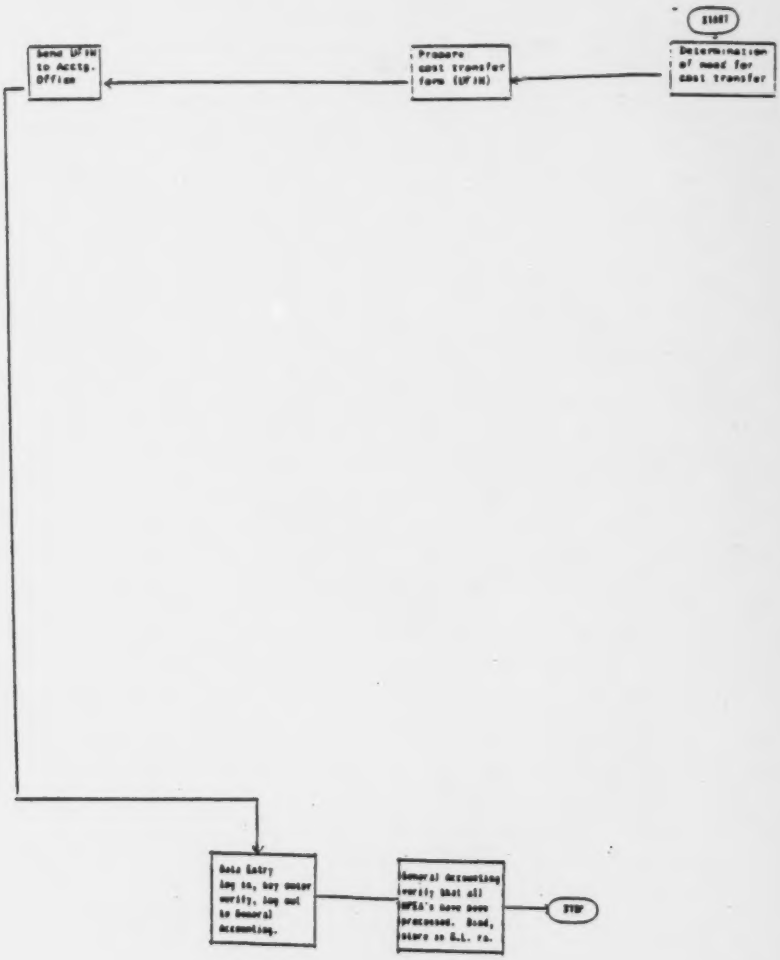

START
Determination of need for cost transfer
Review of relevant documents
Prepare cost transfer form (UFIN)
Attach annotated back-up documentation
PI review & approval of UFIN
Send UFIN to Accts. Office
NPSA Person on Satellite office delivered to off site Accounting office
NPSA sorted and delivered to IBF
NPSA date stamped sorted, delivered to agency dept.
Review for appropriateness of transfer.
Return NPSA to dept with explanation of why not appropriate.
Review for appropriateness of transfer.
Review by Division Manager or Assistant.
NPSA is given to clerical support to check for initials.
Clerical support returns missing initials.
Return to agency Dept for further interpretation.
NPSA's are given log number for future reference.
NPSA's checked to determine if other Divisions need to review.
Additional review by other division reviewers.
Data Entry log in, key enter verify, log out to General Accounting.
General Accounting checks that all NPSA's have been processed. Dept. stores as G.L. re.
STOP

CHART 6

PROCESSING ONE NON-PERSONNEL COST TRANSFER BETWEEN TWO GRANTS

PROCEDURES REMAINING AFTER DETERMINATION OF RELATEDNESS OF THE GRANTS


START
Determination of need for cost transfer
Prepare cost transfer form (IPIN)
Send IPIN to Accts. Office
Data Entry log on, key enter verify, log out to General Accounting.
General Accounting verify that all IPTA's have been processed. Send, secure on G.L. re.
STOP

GRANT ADMINISTRATION SURVEY

SUMMARY DATA

ACTION		HOURS REQUIRED TOTAL	PI	OTHER
Non-Competing Proposals (NIH)				
	Average	24.75	15.57	9.18
	High	44.00	33.60	32.40
	Low	10.09	3.00	0.78
Foreign Travel Approval				
	Average	4.41	1.35	3.06
	High	9.51	4.00	5.51
	Low	0.54	0.00	0.52
General Purpose Equipment Approval				
	Average	4.66	1.77	2.89
	High	15.39	10.68	7.58
	Low	2.51	0.00	1.08
Cost Transfer				
	Average	1.73	0.11	1.63
	High	4.55	0.63	4.39
	Low	0.39	0.00	0.38
Financial Status Reports SF 269				
	Average	8.38	0.03	8.35
	High	21.25	0.25	20.96
	Low	3.08	0.00	3.08
Salary Allocation				
	Average	4.03	0.07	3.96
	High	17.73	0.80	17.00
	Low	1.91	0.00	1.83

TABLE 1

GRANTS ADMINISTRATION SURVEY
EXTRAPOLATIONS FROM SURVEY RESULTS

Nation-wide Time and Cost Calculations

DATA FOR PRESENT FEDERAL REQUIREMENTS

	ACTIONS	Hourly Rate (A)	#/AWD (B)	Average Unit Time HRS. (C)	Time Per 50,000 AWDS HRS. (D)	Time Spent By Scientific P.I. Per 50,000 AWDS HRS. (E)	Cost Per 50,000 AWDS (F)
1.	Annual Continuation Proposals	$35/HR	0.6	24.8	744,000	468,000	$26,040,000
2.	Prior Approval Requests	$30/HR	3	4.5	675,000	240,000	$20,250,000
3.	Salary Cost Allocations	$30/HR	4	4.0	800,000	14,000	$24,000,000
4.	Cost Transfers	$25/HR	5	1.7	425,000	28,000	$10,265,000
5.	Annual Financial Reports	$20/HR	0.5	8.4	210,000	1,000	$ 4,200,000
	Totals				2,854,000	751,000	$85,115,000

Column A: An estimated composite hourly rate of pay for the various personnel involved in processing the transactions (based on rough approximations supplied by some of the survey schools).

Column B: The number of transactions per award, per year, based on experience of survey schools.

Column C: The average number of hours per transactions based on experience of survey schools

Column D: Total number of hours for each action based on 50,000 awards per year.

Column E: Total hours spent on each action by the scientific principal investigator, for 50,000 active grants nationwide, based on extrapolation of actual survey data.

Column F: Total cost for each action based on 50,000 awards per year.

*NOTE:
Extrapolations are based on 50,000 federal grants per year to universities, nationwide. The number 50,000 was developed by using the approximate number of active grants (37,000) reports annually by the five agencies participating in the Florida Demonstration Project; and by employing the conservative assumption that those awards represent 75% of the active federal grant total.

TABLE 2

GRANTS ADMINISTRATION SURVEY
EXTRAPOLATIONS FROM SURVEY RESULTS

Nation-wide Time and Cost Calculations

Simplified System Based on Appropriate Accountability and Good Business Practices

	ACTIONS	Hourly Rate (A)	#/AWD (B)	Average Unit Time HRS. (C)	Time Per 50,000 AWDS HRS. (D)	Time Spent By Scientific P.I. Per 50,000 AWDS HRS. (E)	Cost Per 50,000 AWDS (F)
1.	Annual Continuation Proposals	$35/HR	0	0	0	0	$ 0
2.	Prior Approval Requests	$30/HR	3	1.8	270,000	96,000	$ 8,100,000
3.	Salary Cost Allocations	$30/HR	4	2.0	400,000	7,000	$12,000,000
4.	Cost Transfers	$25/HR	5	0.7	175,000	11,000	$ 4,375,000
5.	Annual Financial Reports	$20/HR	0	0	0	0	$ 0
	Totals				845,000	114,000	$24,475,000

Column A: An estimated composite hourly rate of pay for the various personnel involved in processing the transactions (based on rough approximations supplied by some of the survey schools).

Column B: The number of transactions per award, per year, based on experience of survey schools.

Column C: The average number of hours per transactions based on experience of survey schools

Column D: Total number of hours for each action based on 50,000 awards per year.

Column E: Total hours spent on each action by the scientific principal investigator, for 50,000 active grants nationwide, based on extrapolation of actual survey data.

Column F: Total cost for each action based on 50,000 awards per year.

TABLE 3

GRANTS ADMINISTRATION SURVEY
EXTRAPOLATIONS FROM SURVEY RESULTS

Nation-wide Time and Cost Calculations

Potential Redirection*/Reduction of Time and Cost:
Present Federal System vs Simplified System

ACTIONS	Potential Redirection or Reduction of: Total Time Per 50,000 AWDS HRS.	Time Spent By Scientific P.I. Per 50,000 AWDS HRS.	Total Cost Per 50,000 AWDS
1. Annual Continuation Proposals	744,000	468,000	$26,040,000
2. Prior Approval Requests	405,000	144,000	$12,150,000
3. Salary Cost Allocations	400,000	7,000	$12,000,000
4. Cost Transfers	250,000	16,000	$ 6,250,000
5. Annual Financial Reports	210,000	1.000	$ 4,200,000
Totals	2,009,000	636,000	$60,640,000

*NOTE: Many research staff on federally funded grants expend significant time on administrative activities. Thus, reduced administrative requirements will not result in a corresponding proportional reduction of separately accounted administrative costs. Rather, scientists will spend more time doing research. For this reason, actual cost reduction potential will vary from university to university and is difficult to estimate.

TABLE 4

NIH PERSPECTIVE ON

THE FLORIDA DEMONSTRATION PROJECT

Office of the Director
National Institutes of Health

April 13, 1987

STATEMENT OF THE PROBLEM

Scientists who are conducting research supported by grants from government agencies necessarily are subject to rules, regulations, and policies designed to ensure proper accountability for public funds. This is manifested in myriad administrative, financial, and management procedures and other requirements that a grantee must adhere to before and after receiving an award. Yet this body of procedure imposes its own burden of costs and administrative paperwork.

A consensus is developing among scientists and research administrators to the effect that some of these procedures and regulations are barriers to efficient progress and thus hinder research productivity. While much of current rules clearly are mandatory if responsible stewardship is to be fostered, other parts are primarily "criticism insurance". That is, these latter provisions largely are after-the-fact compensation for embarrassments arising from a relatively few, isolated instances when funds were misused. Research administrators have an obligation to taxpayers on the one hand and to scientists on the other to strive continually to avoid unproductive administrative practices.

BACKGROUND

The Department of Health and Human Services (HHS) and the National Science Foundation (NSF) historically have been at the forefront of simplifying grants administration. The principal approach has been to delegate substantial responsibility for post-award administration of grants to appropriate officials at the awardee institutions. During the 1960's, HHS's Public Heaalth Service (PHS) established its Institutional Prior Approval

System, thereby cutting down on grantor/grantee transactions considerably. In the early 1980's, NSF's Master Grant Experiment gave evidence that the institutional role realistically could be enlarged still more. A similar study by the PHS in the mid-1980's reinforced the emerging point of view that the normal administrative systems of recipient institutions were the appropriate focal point of responsibility. These studies of prior approval processes set the tone for further exploration of ways to make the grants management process more effective, efficient, and manageable.

The Florida Demonstration Project, sponsored by the Government-University-Industry Research Roundtable (GUIRR) of the National Academy of Sciences, is a descendant of the aforementioned NSF and HHS studies. As indicated in the attachment, the central features of the Project are:

- o a common core of requirements for all participating Federal agencies;
- o elimination of all prior approval requirements except change of scope, change of investigator, and change of awardee institutions;
- o simplification of administrative procedures;
- o a broadened definition of project "relatedness" that allows the investigator to treat all of his/her grants as a single cost-center; and
- o the assurance of accountability by preaward evaluation of business and management systems.

The involvement of five Federal research agencies and the major research-oriented universities in Florida provide a critical mass of talent and experience.

PRELIMINARY EVALUATION

Preliminary indicators are that the Florida Demonstration Project will accomplish its goal of streamlining administrative procedures. The primary change underway is one of organizational attitude on the part of both the Federal agencies and the recipient universities. The process is doing much to maintain and strengthen collegial and collaborative relationships between Federal agencies and the research community. This in turn will promote the trust that nourishes creativity.

The Florida Demonstration Project has the potential to have far-reaching impact. Should all the Demonstration features be adopted, there would be several positive outcomes:

- Federal agencies would have a larger set of standardized policies for grants administration;
- States would have more incentive to modify and streamline their corresponding administrative practices; and
- Universities would have new opportunities to lighten the administrative and paperwork requirements for their scientists.

The NIH looks forward to the results of the evaluation that the GUIRR is conducting.

The NIH is interested in promoting expansion of the activities now underway in Florida to include other Federal agencies, other grantee institutions in various regions of the country, and other topics. For example, opportunities for new administrative efficiencies may be found by thorough study of the grant application process and by experimentation with electronic communication during both pre-award and post-award periods. Continuation and maturation of the partnership begun in Florida has much to commend it.

GOVERNMENT-UNIVERSITY-INDUSTRY
RESEARCH ROUNDTABLE

NATIONAL ACADEMY OF SCIENCES
NATIONAL ACADEMY OF ENGINEERING
INSTITUTE OF MEDICINE
2101 Constitution Ave., NW Washington, DC 20418

OFFICE LOCATION
[illegible] JOSEPH HENRY BUILDING
[illegible] STREET AND
PENNSYLVANIA AVENUE, N.W.
[illegible]

A DEMONSTRATION PROJECT OF NEW FEDERAL-UNIVERSITY RESEARCH RELATIONSHIPS

**A Cooperative Effort Among Five Major Federal R&D Agencies,
Public and Private Research Universities in Florida,
and the Government-University-Industry Research Roundtable**

What is the Demonstration Project?

Five major federal R&D agencies, the Florida State University System, the University of Miami, and the Government-University-Industry Research Roundtable are cooperating in the design and demonstration of a new, standardized, and streamlined approach to federal support of university research. The Project encompasses grants by the federal agencies for research projects at the participating universities. The Project will not include procurement awards of a more applied and mission-oriented nature. Indeed, the purpose of the Project is to simplify and streamline the support of research projects that are initiated and directed primarily by university scientists and engineers rather than by staff of the funding agency.

The federal agencies participating in the Project are the Department of Agriculture, the Department of Energy, the National Institutes of Health, the National Science Foundation, and the Office of Naval Research. Substantial support is being provided by the Office of the Secretary of the Department of Health and Human Services. Grants administration and financial management staff from these agencies have provided the leadership and creativity for the project. Other agencies have expressed interest and may join in during the course of the Demonstration Project.

The core of the Demonstration Project is a standard federal instrument for the support of university research projects. All of the agencies will use a standard set of General Terms and Conditions for the post-award administration of research project grants and will supplement this standard set with agency-specific provisions only to the extent necessary to meet legislative requirements and mission goals.

The central features of the General Terms and Conditions are: 1) the elimination of federal requirements for prior approvals except for change of scope, change of investigator, and change of awardee institution (e.g., no federal requirements for prior approvals for foreign travel, permanent equipment purchases, and changes in budget); 2) simplification of administrative procedures, such as the authorization to universities to

allow 90 days pre-award costs, a one-time, twelve month, no-cost extension, and carryover of unobligated balances with no federal prior approvals and the requirement only for annual progress reports and financial reports; 3) the introduction of the option, with approval of the funding agency(ies), for the administrative and accounting unit to be the investigator's program of research rather than individual projects; and 4) the assurance of accountability in research through pre-award and post-award review of the science and of administrative procedures, with fewer transaction-by-transaction reviews during performance (i.e., pre-award scientific and technical review of proposed research and the dollars proposed to be spent on it, pre-award approval of recipient's pertinent business and management systems, review of the research progress or product, and audit review to assure that funds were spent for the relevant program of research).

The Demonstration Project will begin during March, 1986, and will run for a period of two years. All active grants for research projects as specified jointly by the federal agencies and the universities will be included in the Project. As new research project grants are awarded, they will be incorporated into the Project.

The Project will be guided by a Demonstration Agreement, which will be signed by the federal agencies, by the Florida State University System, and by the University of Miami. The Demonstration Agreement includes the set of General Terms and Conditions for grant administration and any agency-specific requirements appended by individual agencies. On occasion, it also may be necessary to specify special conditions in a grant award. During the Project, the Demonstration Agreement serves as the implementing document for the administrative procedures governing federal research grants to universities. The participating federal agencies will be using this common implementing document in place of the variety of individual agency and departmental implementing documents that are now used.

Why is There a Need for the Demonstration Project?

As the sponsored research system has grown and aged, it has acquired layers of administrative, management, and financial procedures. This accumulation is the result of myriad individual actions that seemed necessary or appropriate at the time and that were recommended by the Congress, Executive agencies, state governments, universities, and practicing scientists and engineers. Over time, all participants in the research enterprise have contributed to the accretion of bureaucratic requirements in federal and state governments and in the universities that are limiting the productivity of American science and engineering.

Currently, the international competitive climate is such that there is a need to improve productivity in all sectors of American society including the research sector. This Demonstration Project is an attempt to try out new procedures for the federal support of university research projects that will improve the management efficiency and the productivity of the sponsored research system.

An imbalance between the use of investment and procurement approaches to funding academic research is the source of much of the bureaucratic accretion that threatens to sap research creativity and productivity. Investment approaches to research support generally involve financial assistance for investigator-driven projects or broadly-based institutional research programs. The research sponsor is essentially sharing in the support of the creativity of scientists and engineers. Procurement approaches generally involve highly specified, short-term, goal-driven projects funded on a cost-reimbursement basis, using standard accounting cost principles.

One premise underlying this Demonstration Project is that investment approaches are better adapted to the support of investigator-driven research, especially in the basic science arena, while procurement practices are appropriate only to certain types of university-based research, especially applied and mission-oriented research. The second premise underlying the Demonstration Project is that today many of the administrative and management procedures used in the federal support of university research projects are those more appropriate to a procurement relationship than to an investment relationship. Thus, procedures for the federal support of university research include relatively short-term project funding with fixed start and stop dates, the compartmentalization of research programs into arbitrary project units, the application of accounting principles to project management that lead to transaction-by-transaction accountability, the lack of flexibility in allocating resources locally, and expenditure-driven audits rather than performance-driven evaluations.

What are Some of the Characteristics of University Research that Need to be Taken into Account when Developing a Set of Federal Administrative and Management Procedures Appropriate for its Support?

The detailed course of long-term research largely is unpredictable. The perspective of the investigator tends to be on a comprehensive, long-term, continuous process of investigation in a particular area of science or engineering and does not tend to be on a series of discrete, time-limited tasks. The federal sponsor of university-based research is essentially sharing in the support of the creativity of the investigator.

The central features of this Demonstration Project, as outlined above, are an attempt to test a set of grant administration procedures that are more congruent with the nature of most university research than is the current administrative system. These procedures attempt to minimize the artificial fragmentation of an investigator's comprehensive program of research into artificial, discrete projects by using a standard set of Terms and Conditions for the post-award administration of research grants and by allowing, where appropriate, an investigator's program of research rather than individual projects to be the administrative and accounting unit. The procedures also provide greater flexibility to the principal investigator and to the institution for the management of the research during performance, with the assurance of scientific and financial accountability provided by thorough federal reviews in the pre-award and post-award stages of the research.

What Elements of the Federal Support for University Research Remain Unchanged in the Demonstration Project?

1. The basic framework for federal stewardship and accountability of public funds, as defined in OMB Circulars A-21 and A-110, remains unchanged.

2. Federal procedures for managing and administering procurement and mission-oriented activities remain unchanged.

3. There is no change in the federal agencies' project proposal systems.

4. There is no change in the federal agencies' proposal review and evaluation systems.

5. There is no change in the federal agencies' project award systems.

6. There is no change in the federal systems for reimbursement of direct and indirect costs.

7. University cost accounting continues to be done on a project-by-project basis.

What is the Desired Effect of this Demonstration Project?

It is hoped that the procedures being tried out in the Demonstration Project will make the administrative system for the support and management of university research more consistent with the nature of the conduct of that research, and thereby will serve to increase the management efficiency and the productivity of the sponsored research system. The criteria for determining whether this outcome is achieved will be the views and behaviors of all the parties involved in the sponsored research system--federal technical program managers and federal grants and financial management officials; university administrators, research managers, and financial management staff; and principal investigators.

The Demonstration Agreement requires that the participating federal agencies and universities conduct their own assessments of the Demonstration Project. The effects of the Demonstration Project will be judged by documenting the nature and extent of the administrative procedures in the system as the Project begins and then by obtaining both qualitative and quantitative answers to six types of questions by all of the relevant parties periodically during the course of the Project: 1) Does the new system result in a net decrease in administrative procedures and paperwork within the sponsored research system? 2) How have the efficiency and productivity of the sponsored research system improved? 3) Are the procedures for administering research now more consistent with the nature of the research, i.e., are the paperwork and administrative requirements that remain less burdensome and indeed acceptable because they fit better with the process by which research is carried out? 4) How

have the scientific and financial accountability for the performance of the research and the expenditure of funds been maintained? 5) How have state government procedures and local university procedures been changed along with the changes in the federal procedures? and 6) What problems with this Demonstration Project or with other elements of the sponsored research system still need to be addressed?

The oversight structure for the Demonstration Project provides a ready means for obtaining the information necessary to document the effects of the Project. Each participating university has appointed its own coordinating committee consisting of representatives from all elements of the university community related to sponsored research. The Chancellor of the Florida State University System has appointed a statewide steering committee to oversee the entire project from the state's perspective. This committee includes representatives from the public university system, the University of Miami, the Florida state legislature, the Governor's Office, the State Comptroller's Office, as well as ex officio members from the federal government, the Government-University-Industry Research Roundtable, and the Council on Government Relations. Each federal agency will evaluate its participation in the Demonstration Project. And, finally, the Government-University-Industry Research Roundtable will continue to provide a focal point for convening all the parties involved in the Demonstration Project and will work with them in establishing procedures for documenting the impacts of the new arrangements being tried out in the Project.

Research Roundtable
March 1986

STATEMENT OF

MR. WILLIAM B. COLE, JR.

DIRECTOR, DIVISION OF GRANTS AND CONTRACTS

NATIONAL SCIENCE FOUNDATION

FOR THE

SENATE GOVERNMENTAL AFFAIRS

SUBCOMMITTE ON

FEDERAL SPENDING, BUDGET AND ACCOUNTING

TUESDAY, APRIL 14, 1987

I am pleased to have the opportunity to provide the National Science Foundation's views on the Florida Demonstration Project, and in particular, on how the benefits of the project might be extended in such a way as to have a significant impact on U.S academic research.

The Foundation has been an enthusiastic participant in the Florida Demonstration Project from its inception. For NSF, this Project continues an evolution in our approach to research administration. This approach is predicated on the philosophy that the grant relationship ought to emphasize the recipient's responsibility and authority and minimize the Federal role in the management of research activities. The Foundation chose the grant mechanism as its preferred way of supporting research in

1951. Despite the broad discretionary authority extended by Congress- "contracts or other arrangements (including grants, loans, and other forms of assistance)," the National Science Board gave its unanimous approval of the use of the project grant wherever possible "because of its simplicity, ease of administration, and greater acceptability among research personnel." In keeping with this philosophy of simplicity and local responsibility, NSF concluded several years ago that Federal project grants had come to resemble procurement instruments rather than grants, and contained features which were inappropriate for the support of scientific research. We re-defined the NSF grant and shifted most responsibility and authority to the local grantee level through Organizational Prior Approval Systems. We believe this approach to be consistent with the Grant and Cooperative Agreement Act of 1978, which requires the use of grants for projects where little or no Federal involvement is contemplated.

The Foundation's experience with the Organizational Prior Approval System approach has been considered largely successful. However, it became apparent to NSF that a primary benefit of simplifying the grant- the potential for administrative savings- was not being realized. While the flow of paper from grantees to Washington was mostly eliminated, it was often replaced by

paperwork generated by grantee internal requirements resulting from the establishment of OPAS review procedures. Further, it is axiomatic that grantees will establish administrative systems which are responsive to the most stringent Federal agency requirements. Thus, any effort on the part of one agency to simplify its administrative requirements will not be fully successful because grantees will find it easier to continue to meet another agency's stricter requirement for all of its Federal awards than to establish another procedure. Worse, agency improvements which are on their face simplifications can become counterproductive if they add to the proliferation of different, and sometimes conflicting, requirements of several agencies.

Therefore, NSF believes that to have maximum benefit, efforts toward simplifying research administration should be part of a Federal-wide approach. The Florida Demonstration Project tests the hypothesis that standardizing Federal requirements and simplifying financial and administrative requirements will increase research productivity and produce cost savings, while maintaining appropriate accountability.

NSF believes that the issue of increased research productivity is of the highest priority. The link between research and the welfare of our nation has been amply demonstrated. However, it

is only recently that the nation's economic competitiveness has moved to center stage. We now realize that if we want to compete successfully as a nation, the most important thing is to stay ahead of our competitors in continually generating new ideas and knowledge through basic research, and turning them into high quality, innovative products and services in the marketplace. University research is a primary vehicle for the development of the ideas and knowledge we need to compete in high technology areas. The Florida Demonstration Project provides a unique opportunity to accomplish constructive change in the Federal-University research environment which may produce increases in productivity.

We also believe that elimination of various administrative requirements is an important step in reducing what many consider to be excessive, micro-management of research by the Federal Government. The 1986 Packard-Bromley Report on the Health of U.S. Colleges and Universities cites the paperwork burden associated with grant and contract administration as a "self defeating, and constant source of stress between government managers, faculty, and university administrators."

Next Steps

While a final evaluation of the Project has yet to be completed, the Florida Demonstration Agreement governing the administration of grants awarded in the State by the five participating agencies expires at the end of this year. Decisions must be made on the further implementation of these changes. I would like to share NSF's views on the subject of further implementation.

First, assuming the necessary reviews and analyses demonstrate the objectives of the Project have been realized and it appears in the best interest of the Federal government, NSF believes that OMB might consider expanding the project to all Federal research funding agencies, for support of all university fundamental research (whether by grant or contract), for all universities. Then, if there are other changes that are logical in light of the things being tested in Florida, they can be considered as further refinements. We believe it is important that the government-wide impact of such changes on existing administrative guidance be thoroughly considered. Further, other agencies which sponsor university research but which have not been Project participants should be involved in the evaluation of the Florida project and any extension.

Second, states, state systems and grantees should take the lead and agree to review their own internal requirements and to minimize those that are unnecessary or inconsistent with the philosophy and approach reflected by this Project. The reduction in Federal and local administrative requirements should not be construed as a reduction in the responsibility of grantees to be accountable for the expenditure of public funds. Grantees must agree to demonstrate that their administrative systems continue to provide adequate control for these expenditures and meet minimum agreed-to standards.

In summary, NSF feels the Florida Demonstration Project provides the basis for important changes in the research support relationship, changes which will have a significant effect on Federal-University relations and the support and productivity of scientific research. In one respect the project has already demonstrated the potential for the Federal Government, State Government, and universities to work together to find solutions to common problems. We are committed to continue to do what is necessary to extend the benefits of the Florida experience to the entire research system.

RESEARCH PRODUCTIVITY AND ADMINISTRATIVE COSTS: AN ANALYSIS OF SELECTED FEDERALLY PRESCRIBED RESEARCH ADMINISTRATION ACTIVITIES

BY: The University of California
Columbia University
Florida State University
The University of Florida
The Johns Hopkins University
The University of Miami
The State University of New York
The University of Virginia

April 1987

Florida State
UNIVERSITY

Office of the Vice President
Research and Graduate Studies
Tallahassee, Florida 32306-1047
904/644-5260

April 13, 1987

The Honorable Lawton Chiles
United States Senator
Russell Senate Office Building
Room 250
Washington, D. C. 20510

Dear Senator Chiles:

Thank you for your letter of March 26, 1987.

Since our initial meeting of July 24, 1986 in Washington, D.C., The University of California, Columbia University, The Florida State University, The University of Florida, The Johns Hopkins University, The University of Miami, The State University of New York, and The University of Virginia have worked hard to prepare the report for the time and cost survey of selected federal administrative requirements that you requested at that July 24, 1986 meeting.

On behalf of the participating universities I am pleased to submit the report entitled, "Research Productivity and Administrative Costs: An Analysis of Selected Federally Prescribed Research Administration Activities" for inclusion in the testimony before the Subcommittee on Federal Spending, Budget, and Accounting. As noted in the report, two of the universities have performed more detailed analyses which I will submit to you later when they become finalized.

I trust that you will find this information useful in dealing with your concerns related to the role of the federal government in its support of research.

Sincerely,

Robert M. Johnson
Vice President for
Research & Graduate Studies

FOREWORD

The survey described herein was undertaken by the representatives of participating universities with encouragement and assistance from The Government-University-Industry Research Roundtable of the National Academy of Sciences. The results related and the recommendations provided, however, are entirely those of the participants and are not to be attributed to the Roundtable or the Academy. For further discussion or information regarding the survey, please contact:

Robert Johnson, Vice President for
Research and Graduate Studies
Florida State University
408 Westcott Building
Tallahassee, Florida 32306
(904) 644-3500

or

John Dearden, Director
University Sponsored Projects
The Johns Hopkins University
113 Garland Hall
34th and Charles Streets
Baltimore, Maryland 21218
(301) 338-8140

8 April 1987

88-118 0 - 88 - 5

Research Productivity and Administrative Cost: An Analysis of Selected Federally Prescribed Research Administration Activities

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	i-iii
A. THE ISSUE: EXCESSIVE FEDERAL ADMINISTRATIVE REQUIREMENTS AS A COSTLY IMPEDIMENT TO UNIVERSITY RESEARCH PROJECTION	1
B. BACKGROUND	
1. Historical Perspective: Partnership vs Procurement	2
2. Bureaucratic Accretions: Nonstandardized Diversity	2
3. Accountability vs Control: Reality vs Delusion	3
4. OMB and Circular A-21: Cost Reimbursement vs Costs	4
5. The Florida Demonstration Project	4
C. THE MULTI-UNIVERSITY TIME AND EFFORT SURVEY OF ADMINISTRATIVE COSTS IN RESEARCH	6
1. Basic Assumptions	7
2. Testing the Assumption	7
3. Survey Results	8
D. SUMMARY AND RECOMMENDATIONS	
1. Summary	9
2. Recommendations	10
E. ADDITIONAL REPORTS AND FINDINGS	
1. University of California	11
2. Columbia University	12

APPENDICES

A. Government-University-Industry Research Roundtable: Preliminary Observations on The Florida Demonstration Project

B. Remarks and Related Correspondence by Senator Lawton Chiles to a Multi-University Working Group on Research Administration Reform

C. Diagrams of the Administrative Transactions Surveyed and Diagrams of Simplified Equivalents

D. Summary Survey Data and Data Extrapolations

EXECUTIVE SUMMARY

Research Productivity and Administrative Costs: An Analysis of Selected Federally Prescribed Research Administration Activities

The current concerns regarding national competitiveness and the need to reduce the federal deficit have resulted in increased interest in a more productive and efficient national academic research enterprise. This has occurred at a time of growing consensus between academia and government that federal administrative requirements are often excessive, costly impediments to research productivity.

Building on prior efforts by the National Science Foundation and the Public Health Service, five major federal funding agencies joined with Florida research universities in a project designed to demonstrate the value of common, standardized, and simplified post-award research grant administration requirements. The results were immediately obvious: faculty devoted less time to paper work and more time to research; the administrative system became more responsive to and supportive of research; and significant simplification of research administration resulted.

As a result of the immediate successes of the Florida Project, Senator Lawton Chiles invited a number of other research universities to participate with the Florida institutions in a time and cost survey of selected, federal administrative requirements. The procedures analyzed were:

a) the preparation and processing of PHS noncompeting continuation applications for project grant support;

b) the preparation and processing of prior approval requests to charge acquisition of general purpose equipment and foreign travel to a project grant;

c) salary cost allocation decisions among grants to the same Principal Investigator (PI);

d) the processing of cost transfers between project grants; and,

e) the preparation and submission of annual financial reports.

Although different local conditions produced considerable variation among the survey results, there was completely consistent support for the following inferences:

* Significant amounts of researchers' time is spent on administrative processes that can be streamlined or eliminated. There is a potential for increases in research productivity because the time available for researchers to perform research can be increased.

* Non-essential Federally required rules add significantly to the costs of administering sponsored research.

* Significant gains in research productivity and reductions in administrative cost will be realized by recognition of the reality of an investigator's "program" of research. The federal support system is built on the concept of separate, discrete "projects." The benefits of making the system consistent with the reality of "programs" will be many, not the least of which will be psychological.

* University business systems are adequate to assure accountability. The different requirements of various federal funding agencies have created layers of administrative requirements that are largely redundant.

* Elimination and reduction of federal administrative requirements in university research should make possible corresponding federal savings and staff reductions in federal agencies.

* Elimination of unnecessary administrative controls and streamlining of those remaining at the federal, state and university levels can result in a much improved research environment and more productive use of resources.

Conservative extrapolations of the survey data to the national level indicate that, if the five administrative transactions studied were simplified and streamlined in a manner consistent with good business practices and appropriate accountability, a potential net redirection of federal resources from administration to science on the order of $60 million dollars is possible. This would result in large part from the redirection of more than 600 thousand hours of scientific principal investigator time. It is important to note the use of the term redirection, rather than cost reduction. This distinction is based on the fact that many senior and junior research staff on federally funded research grants expend a significant amount of time on associated administrative activities. Thus, reduction of federal administrative requirements would free such research personnel to do proportionately more research. For this reason, it is impossible to estimate accurately the potential for actual cost reductions. In many instances, a reduction of administrative cost will not

save dollars; scientists will simply do more research. The actual cost reduction potential varies from university to university, as a function of the distribution of administrative responsibilities between technical and administrative personnel. Even so, the data extrapolations do indicate a potential for actual reduction of administrative costs on the order of tens of millions of dollars. And overall, because the five administrative transactions surveyed constitute a minor proportion of all federal requirements, it is clear that extension of administrative simplification and standardization to the entire federal support system for academic research offers enormous potential gains in national research productivity.

Based on the results of the survey, in conjunction with results from the Florida Demonstration Project, the following recommendations are offered:

RECOMMENDATION 1: The five federal agencies participating in the Florida Demonstration Project should incorporate the terms and conditions now being used in Florida in their research contracts as well as grants.

RECOMMENDATION 2: The Florida Demonstration Project should be expanded to involve additional universities.

RECOMMENDATION 3: The participating agencies and grantee institutions should continue to work with Congress and OMB to further enhance the Project through additional reduction and simplification of federal administrative requirements.

RECOMMENDATION 4: Other federal agencies should join the current five agencies in the Project, under the same set of terms and conditions.

RECOMMENDATION 5: The participating agencies and universities should continue to work with the Congress and OMB towards the goal of a standardized, simplified nation-wide system for administration of federally supported research.

RECOMMENDATION 6: The federal funding agencies and universities should work with Congress and OMB to devise incentives for optimally efficient research administration at the state and university level.

RESEARCH PRODUCTIVITY AND ADMINISTRATIVE COSTS: AN ANALYSIS BY RESEARCH UNIVERSITIES OF SELECTED FEDERALLY PRESCRIBED RESEARCH ADMINISTRATION ACTIVITIES

A. THE ISSUE: EXCESSIVE FEDERAL ADMINISTRATIVE REQUIREMENTS AS A COSTLY IMPEDIMENT TO UNIVERSITY RESEARCH PRODUCTIVITY

The current U.S. trade imbalances and the pressures for federal deficit reduction have fostered much discussion of "competitiveness" and how to restore and maintain America's position in the international market for technology-based products. Among the highest priority national needs for which a consensus has developed is a strong and productive university research enterprise. A large, diverse and creative academic research effort is regarded as essential to long term National economic growth, security and health; the universities' intellectual products and scientific training provide the base upon which the future must be built. And, as with national defense, out of necessity the federal government has accepted its primary and predominant responsibility to foster and support university research. It has done this quite successfully. The federal system of support has fueled the growth and development of a system of research universities that is unequaled anywhere else in the world. But federally supported academic research has become increasingly impeded and rendered more costly by excessive or unnecessary administrative requirements. The result has been a deterioration of the research environment and an erosion of the quality of the relationship between the government and the research universities. This fact, and the risk to national interests it represents, has been documented by many different studies conducted during the past twenty years; to quote one such study:

> "The government-university relationship is a complex and pluralistic composite of many individual relationships. The aggregate relationship is constantly evolving. The evolution over the last decade has involved a noticeable deterioration, the result of many factors and numerous incremental changes. Actions or omissions of both parties have contributed to this deterioration. <u>While the problems are limited almost entirely to fiscal and administrative matters, the results affect research productivity</u> (emphasis added). If continued movement in this direction is allowed, it would surely enfeeble the national effort in research. Research, science, and technology play key roles in solving the present problems facing the nation and the world. We cannot reduce the effectiveness of our national research program without jeopardizing our future."
>
> National Commission on Research - 1980

B. BACKGROUND

1. Historical Perspective: Partnership vs Procurement. Early in the post-WWII era, as a result of the efforts of individuals such as Vannevar Bush and Alan Waterman, the United States Government recognized that our national welfare was ultimately dependent upon sustained and strong university-based research. It therefore became a national policy objective to foster and support the academic research enterprise. The initial relationship was characterized by mutual trust and, notably, minimal administrative requirements for the recipients of federal support; the relationship was truly a partnership. As a result of Federal policies and investment, the system of American research universities evolved as the locus of ever more costly and competitive research that was virtually dependent upon federal support. More or less simultaneously, the federal bureaucracy shifted incrementally from optimally minimum administration of research to what became de facto a procurement-based system of administrative and fiscal controls. But the facts of university sponsored research remained virtually unchanged; the research is not prespecified and procured, and rarely does it produce prespecified tangible research products. The significant change was in the growth of federally required administrative/management systems. These became increasingly inappropriate to and inconsistent with the realities of academic research. There also necessarily occurred a corresponding, ceaseless growth in the resultant administrative costs of sponsored research.

2. Bureaucratic Accretion: Non-standardized Diversity. The term bureaucratic accretion refers to the process of creeping expansion of administrative impositions. This is rather analogous to the geological process of sedimentation; over time, relatively inconsequential "contributions" produce many layers of nearly impenetrable rock or red tape. In the instance of federally funded academic research, the situation is compounded by the fact that there are many different federal sponsors, each of whom are likely to contribute independently to the aggregate administrative requirements imposed on research universities. There is essentially no government-wide uniformity across funding agencies for administration of federally supported academic research. In fact, therefore, the research universities deal with many federal governments, each imposing various and differing administrative demands. But the academic research process supported does not differ materially from sponsor to sponsor. Typically, many academic researchers receive support for well integrated, long term research programs from multiple federal sponsors. Each of these sponsors usually employs the administratively convenient pretense of providing support for discrete, separate research projects, and each imposes administrative requirements accordingly. The resultant administrative and fiscal complexities are significant; they are also often unnecessary.

3. Accountability vs Control: Reality vs Delusion. Accountability is the watchword of the guardians of the public trust and the government coffers. And this is quite appropriate. But the modes of accountability need not be, indeed cannot be made operationally uniform for all uses and users of federal funds. Modes of achieving accountability must accommodate qualitative differences among different enterprises. Research universities have little in common with commercial R & D vendors or the producers of procurable goods and services. The institutions are different, the products are different, and there is virtually no institutional management of university research; rather, there is literal unpredictability of results, and management to support university research. The actual management of academic research is performed by the researchers. The federal systems of accountability for academic research support, however, have moved progressively farther from accommodating that reality. Ultimately and basically, accountability is ensuring that funds are used for the purposes intended by the sponsor. For academic research, accountability can best be achieved by vigorous pre-and post-award scientific/technical review of the activities proposed and supported; it is not achieved by detailed budget controls and administratively focussed micromanagement. These latter approaches may serve well on NASA hardware fabrication contracts and similar procurement, but they do not achieve accountability in federally supported academic research. They do divert effort from science to paperwork, and add to non-productive administrative costs. This is so because academic research is simply not externally directed. In university research, the equating of non-local micromanagement and financial controls with accountability is a delusion.

The private corporate sector deals with universities in a fashion which is more consistent with the realities of academic research. Accountability is achieved by a primary focus on technical activities and results; once funded, university research is usually unencumbered by significant administrative or financial reporting requirements. In fact, the administrative requirements for universities under corporate research contracts are usually much less than those imposed by federal grants. And the administrative requirements under federal research contracts are typically much greater than for grants. Thus, it is not surprising that the administration of private corporate contracts in universities places much less of an administrative burden on the academic researcher than does most federal support, and the institutional post-award administration is typically far simpler. There is an obvious implication in this observation, which is: even a much reduced and simplified set of post-award federal grant administrative requirements might, in fact, be fully adequate to achieve appropriate accountability for all federal research awards in universities, including virtually all research contracts.

4. OMB and Circular A-21: Cost Reimbursement vs Costs. Concurrent with and indeed part of the growth of federal administrative and financial requirements associated with Government support of academic research, was the development of OMB Circular A-21 "Cost Principles for Educational Institutions." This document has progressively defined and created for federally funded academic research, a determination of what costs are allowable and how they may be calculated. Thus, because A-21 serves as the definitive basis for all federal cost-reimbursement to universities, it functions as a regulatory code that has resulted in additional administrative and financial requirements and systems. These are defined in detail by funding or audit agencies, but they are derived from A-21. Circular A-21 originated in part from a desire of federal managers to replace the prior use of fixed-rate administrative allowances and minimal administrative requirements and controls with a cost-reimbursement system of greater and more precise accounting. This goal was achieved, but it resulted in increased administrative costs. A-21 was recently revised to require that all universities use a uniform fixed rate in place of cost reimbursement principles for a specific type of administrative cost. Overall, this will result in less than full recovery of unavoidable costs at many universities, particularly those which are research-intensive. It is somewhat ironic that A-21, which has resulted in additional administrative costs at universities, will now often function to deny to many research universities full reimbursement for the federal share of such costs.

5. The Florida Demonstration Project. Among the Federal funding agencies there has been growing recognition of the problem of micromanagement, and efforts to alleviate the situation have resulted in some noteworthy successes. The Public Health Service (PHS) initiated the systematic approaches towards this goal more than a decade ago with an "Institutional Prior Approval System (IPAS)", which was adopted and revised by the National Science Foundation (NSF) as the "Organizational Prior Approval System (OPAS)" shortly thereafter. Both systems incorporated increased local management authority and simplified administrative procedures. From 1979 through 1983, the Association of American Universities (AAU) was involved with NSF in an experiment which tested the feasibility of transferring significant grants management responsibility and authority from the NSF to 13 major research universities. From 1984 through 1986 the PHS conducted a similar experiment. Both efforts proved so successful that virtually all elements were adopted by each agency nationwide. In 1986, five major federal agencies (Agriculture, Energy, NIH, NSF, Office of Naval Research), in conjunction with research universities in the State of Florida initiated a unique project.

The project was designed to demonstrate that standardization, simplification and reduction of federal administrative requirements for academic research was possible, with no loss of accountability; that such standardization, simplification and reduction of administrative requirements would result in increased research productivity by allowing scientists to spend more time on research and less on administration; and that the administrative costs of federally supported research might be reduced if all agencies under all types of funding agreement were to have only essential, and standardized, administrative requirements. The Project focuses on changes designed to make administrative requirements more consistent with the realities of academic research. It appears to point the way towards a less encumbered, more productive system of Federal support for academic research. And it is also a significant attempt to deal with issues of cost through creative management.

The changes being tested in Florida deal directly with significant problems in the existing method of federal support of academic research: relatively short term funding with fixed start and stop dates; the compartmentalization of research programs into arbitrary project units that leads to transaction-by-transaction accountability; the lack of flexibility in allocating resources locally; and expenditure-driven rather than performance-driven audits. The heart of the Project is a standard set of federal terms and conditions for the support of university research. Its central features are:

* A standard set of terms and conditions used by the participating federal agencies for the post-award administration of federally sponsored university research project grants;

* Elimination of federal prior approval requirements except for changes in scope, investigator, and institution;

* Simplification of federal research project management requirements (for example, authorization to universities to allow 90 days pre-award costs, a one-time, twelve-month, no-cost extension, and carry over of unobligated balances with no federal approval);

* With approval of the funding agency(ies), an investigator's program of related research projects can be established as a single administrative and accounting unit, rather than treating each project as a separate unit;

* Accountability through review of the science, review of university administrative procedures, and audit review to assure that funds were spent for the relevant program of research; and

* Modification of state government and university administrative procedures to make them consistent with the changes in the federal procedures.

The changes being tested in Florida entail two modifications of agency implementations of OMB Circular A-21: (1) most federal prior approvals are eliminated, and (2) the allocation provisions of A-21 are modified to focus on programs of research rather than projects. These changes produce simplifications in the processes whose costs are in large part reflected in the administrative elements of indirect costs.

Thus the approach being taken can result in reduced pressures on indirect cost increases. The effects on research productivity are best expressed by faculty themselves:

> "The proportion of time that a faculty member and/or principal investigator must spend with non-scientific paperwork is astounding. The FDP reduces paperwork, increases flexibility in the use of funds, and accordingly increases the efficiency in the use of these funds. The FDP is a major step in the right direction."
>
> "The FDP seems to have reduced by at least half the time I must spend in tracking my funds. . .
>
> "There is more time to do science!"

Additional faculty comments arising from the Project are included in Appendix A, Government-University-Industry Research Roundtable "preliminary observations" on the Project.

C. THE MULTI-UNIVERSITY TIME AND EFFORT SURVEY OF ADMINISTRATIVE COSTS IN RESEARCH.

Because of prior involvement with or awareness of the Florida Demonstration Project, and in part because of concern over the federal movement towards limiting cost reimbursement without corresponding relief from administrative requirements, representatives of a number of other research universities began to meet with the participants in the Florida Demonstration Project to discuss its effectiveness, whether and how it might be enhanced and enlarged, and how certain basic assumptions might be evaluated.

Senator Lawton Chiles, an early and consistent supporter of the Florida Demonstration Project and its goals, encouraged the involvement of this larger group. On July 24, 1986 Senator Chiles attended a meeting of university representatives from Florida and other states, and urged the attendees to continue their efforts for constructive change. In his remarks (see Appendix B) the Senator noted the importance to the nation of

improved research productivity and efficiency, and invited the attendees to develop information for the Congress on the effects and costs of the administration required for federally-supported academic research.

In response to the invitation from Senator Chiles, and with the support of the Government-University-Industry Research Roundtable, representatives of eight research universities agreed to undertake analyses of several administrative and fiscal procedures required to implement the rules established by federal agencies for the conduct of research. Certain of the procedures studied are procedures that are being simplified under the Florida Demonstration Project. The others were reviewed in order to assess the value of possible future enhancements of the Project. The institutions are a mix of public and private universities: the University of California; Columbia University; Florida State University; the University of Florida; The Johns Hopkins University; the University of Miami; the State University of New York; and, the University of Virginia.

1. Basic Assumptions. There was general consensus among the representatives of the research universities on a number of points:

a) that research faculty and personnel are typically engaged in much administrative activity, to the detriment of research productivity;

b) that many federal administrative requirements contribute little to either research quality or quantity, or to accountability, and might therefore be usefully eliminated or reduced; and,

c) that in addition to being a serious impediment to research productivity, such federal administrative requirements have significant dollar costs.

2. Testing the Assumptions. A protocol to test the validity of the above assumptions was developed by the University of California system. Initial results from a test sample at one of the campuses in the system indicated that the selected federal requirements were, in fact, relatively unnecessary, counter-productive, and entailed significant associated costs.

Recognizing the importance of these indications, and that the feasibility of administrative standardization and simplification was being demonstrated in Florida, the eight research universities undertook analyses of a set of administrative and fiscal procedures, using local variants of the California protocol. The procedures studied were:

a) the preparation and processing of PHS noncompeting continuation applications for project grant support;

b) the preparation and processing of prior approval requests to charge acquisition of general purpose equipment and foreign travel to a project grant;

c) salary cost allocation decisions among two grants to the same PI;

d) the processing of cost transfers between project grants; and

e) the preparation and submission of annual financial reports.

3. Survey Results. As would be expected, different local conditions provided much variation among the reported results of the analyses, but there is completely consistent support for the following inferences:

* Significant amounts of researchers' time is spent in administrative processes that can be streamlined or eliminated. There is a potential for increases in research productivity because the time available for researchers to perform research can be increased.

* Non-essential Federally required rules add significantly to the costs of administering sponsored research.

* Significant gains in research productivity and reductions in administrative cost will be realized by recognition of the reality of an investigator's "program" of research. The federal support system is built on the concept of separate, discrete "projects." The benefits of making the system consistent with the reality of "programs" will be many, not the least of which will be psychological.

* University business systems are adequate to assure accountability. The different requirements of various federal agencies have created layers of administrative requirements that are largely redundant.

* Elimination and reduction of federal administrative requirements in university research should make possible corresponding federal savings and staff reductions in federal agencies.

* Elimination of unnecessary controls and streamlining of the remaining controls at the federal, state and university levels can result in a much improved research environment and more productive use of resources.

Appendix C of this report compares the surveyed administrative transactions diagrammatically with simpler, potential substitute procedures. Appendix D displays summary survey data and extrapolations from the data developed by the eight universities. Conservative extrapolations of the survey data to the national level indicate that, if the five administrative transactions studied were simplified and streamlined in a manner consistent with good business practices and appropriate accountability, a potential net redirection of federal resources from administration to science on the order of $60 million dollars is possible. This would result in large part from the redirection of more than 600 thousand hours of scientific principal investigator time. It is important to note the use of the term redirection, rather than cost reduction. This distinction is based on the fact that many senior and junior research staff on federally funded research grants expend a significant amount of time on associated administrative activities. Thus, reduction of federal administrative requirements would free such research personnel to do proportionately more research. For this reason, it is impossible to estimate accurately the potential for actual cost reductions. In many instances, a reduction of administrative cost will not save dollars; scientists will simply do more research. The actual cost reduction potential varies from university to university, as a function of the distribution of administrative responsibilities between technical and administrative personnel. Even so, the data extrapolations do indicate a potential for actual reduction of administrative costs on the order of tens of millions of dollars. And overall, because the five administrative transactions surveyed constitute a minor proportion of all federal requirements, it is clear that extension of administrative simplification and standardization to the entire federal support system for academic research offers enormous potential gains in national research productivity.

D. SUMMARY AND RECOMMENDATIONS

1. Summary:

Out of concern over the eroding productivity of the federally supported research process, a feasibility project is being successfully conducted by five federal agencies and Florida universities that employs standard, simplified terms, conditions and administrative requirements for federally supported research.

Concurrent analyses by the Florida institutions and other research universities indicate that even relatively benign federal administrative requirements are often unnecessary, impede research productivity, and are costly. A set of federal administrative requirements based on a technically-oriented operational redefinition of accountability would be more consistent with the reality of federally supported research and should be developed to apply to virtually all federal grants, cooperative agreements and contracts for academic research. Federal post-award administrative requirements might beneficially be modelled on those typical of corporate contract support for university research. In order to encourage and optimize creative, efficient management practices which are consistent with local conditions, the federal-university relationship should be predicated on the principle of full cost reimbursement to universities for the federal share of research administration; fiscal concerns should be managed by efforts to reduce costly administrative requirements, rather than by attempts to arbitrarily limit recovery of associated costs, such as via fixed indirect cost rates. This would reduce present tendencies to assign administrative responsibilities to research personnel, and would thereby allow the nation's most creative scientists to more fully devote themselves to the pursuit of research excellence.

There now exists a unique opportunity to reverse the deterioration in the federal-university relationship that has occurred during the past decade. Research productivity is a key ingredient of competitiveness. There is an active federal agency interest, stimulated and encouraged by the Government-University-Industry Research Roundtable, in making constructive changes in the arrangements for the support of academic research. OMB has expressed a willingness to consider constructive proposals. Members of Congress are willing to play an active role in the process. And the changes now being explored and tested do deal with the problems that have plagued the relationship.

2. Recommendations:

Based on the results of this study, the following recommendations are offered:

RECOMMENDATION 1: The five federal agencies participating in the Florida Demonstration Project should incorporate the terms and conditions now being used in Florida in their research contracts as well as grants.

RECOMMENDATION 2: The Florida Demonstration Project should be expanded to involve additional universities.

RECOMMENDATION 3: The participating agencies and grantee institutions should continue to work with Congress and OMB to further enhance the Project through additional reduction and simplification of federal administrative requirements.

RECOMMENDATION 4: Other federal agencies should join the current five agencies in the Project, under the same set of terms and conditions.

RECOMMENDATION 5: The participating agencies and universities should continue to work with the Congress and OMB towards the goal of a standardized, simplified nationwide system for administration of federally supported research.

RECOMMENDATION 6: The federal funding agencies and universities should work with Congress and OMB to devise incentives for optimally efficient research administration at the state and university level.

E. ADDITIONAL REPORTS AND FINDINGS

1. University of California - As part of its study, the University of California collected additional information on the marginal effects of federal rules on university research administration:

* The sequence of paper growth was examined as a federal rule which may be one or two sentences gets translated by a granting agency into a page or more of implementing regulations, and then may be re-translated by a campus or school into a dozen or so pages of instructions and forms.

* Actual procedures were examined to document what steps were taken to satisfy a federal requirement that would not have been taken in the absence of that requirement. The emphasis here was on seeing how necessary procedures could be streamlined by eliminating unnecessary steps within those procedures. It was found in the cases examined that as many as 60%-80% of the total steps in a given procedure could be eliminated while amply satisfying normal prudent business requirements.

* The study brought to light numerous examples of such unnecessary steps, which nevertheless carried with them substantial paperwork burdens, i.e., all the instructions, forms and other documents that grow out of the need to comply with relatively brief federal requirements. Those requirements thus seem to be prime candidates for review under the Paperwork Reduction Act, but no such review has been done under the Act to date.

* It was also found that substantial bureaucratic accretion arises from requirements to account to the federal government for individual projects rather than for the broader research programs of scientists. These project-unit accountability requirements cause certain procedures (such as prior approvals, cost transfers, and cost allocation decisions) to consume on average twice as much administrative time as if the unit of accountability were the scientist's program of research. The "program" concept is only feasible if related awards from different agencies can be treated as a single accounting unit.

* Though the scope of the study was limited mainly to administrative processes, informal comments from respondents indicated that bureaucratic accretion may affect not only the costs but also the quality--the excellence--of research. A significant area for productivity improvement may be in mitigating the effect of federal regulations on the spirit, passion, commitment of research scientists.

2. Columbia University - A report which fully describes the development and extrapolation of data generated by evaluation of ten administrative transactions was prepared for full internal distribution by Columbia University.

APPENDIX A

GOVERNMENT UNIVERSITY INDUSTRY RESEARCH ROUNDTABLE

THE FLORIDA DEMONSTRATION PROJECT: PRELIMINARY OBSERVATIONS

THE FLORIDA DEMONSTRATION PROJECT: PRELIMINARY OBSERVATIONS ON THE IMPACTS OF THE PROJECT

What Is The Florida Demonstration Project?

Five federal R&D agencies, the Florida State University System, the University of Miami, and the Government-University-Industry Research Roundtable are cooperating in the demonstration of a streamlined and standardized approach to the post-award administration of federal research grants to universities. The participating agencies are the Department of Agriculture, the Department of Energy, the National Institutes of Health, the National Science Foundation, and the Office of Naval Research. Substantial support is provided by the Office of the Secretary of the Department of Health and Human Services.

The Florida Demonstration Project began in the spring of 1986 and is scheduled to run through 1987. The goals of the Project are: 1) to improve the overall environment for research by making the management procedures for university research projects more consistent with the procedures used in conducting research and 2) to decrease the administrative requirements, procedures, and costs within the sponsored research system.

The Project consists of the following central elements:

- A standard set of terms and conditions used by the participating federal agencies for the post-award administration of federally sponsored university research project grants;
- Elimination of federal prior approval requirements except for changes in scope, investigator, and institution;
- Simplification of federal research project management requirements (for example, authorization to universities to allow 90 days pre-award costs, a one-time, twelve-month, no-cost extension, and carry over of unobligated balances with no federal approval);
- With approval of the funding agency(ies), an investigator's program of related research projects can be established as a single administrative and accounting unit, rather than treating each project as a separate unit;
- Accountability through review of the science, review of university administrative procedures, and audit review to assure that funds were spent for the relevant program of research; and
- Modification of state government and university administrative procedures to make them consistent with the changes in the federal procedures.

The Roundtable is working with agency personnel and university officials to collect quantitative and qualitative information on the operation of the Project. These data are being used to monitor progress and document outcomes.

The Documentation Process--Preliminary Observations

The documentation process requires the universities to gather information, both quantitative and qualitative, on the impacts of the Project on the conduct of research and on their research administration systems. Information is obtained from all parts of the university research community -- principal investigators, department chairs, academic deans, research deans, research administrators, contract and grant officers, and financial officers.

The first set of "readings" was taken in August, 1986. They provide Baseline Data on the operation of the system before the Project was fully operational and Qualitative Judgements on the main problem areas in the current system.

The principal observations from the Initial Readings are:

- Problem areas in the current system are prior approvals (the time and the paperwork involved; budget modifications and foreign travel are particular problems), pre-award and post-award costs (uncertainties in these areas cause discontinuities in research programs), documentation requirements, and the differences in administrative and financial procedures among the federal agencies. The Florida Project addresses all of these areas so there is reason to believe that the Project will have a positive impact on the research environment.

- The time and effort required to carry out various administrative procedures in those grants covered by the NSF OPAS system or the NIH IPAS system are less than for grants from other agencies. The Florida Project extends and further simplifies the OPAS and IPAS provisions so there is reason to expect that administrative time and effort will decrease.

- Problems were identified in purchasing, personnel, and other areas that are primarily state responsibilities. The Florida Statewide Steering Committee, which includes state government officials, is working on these problems.

The second set of "readings" was taken in November, 1986. These data provide the basis for initial observations on the impacts of the new administrative procedures. These preliminary observations are summarized below.

- The average amount of time for final action (approval or disapproval) on project management items (e.g., foreign travel, budget changes, pre-award costs, no-cost extensions, etc.) has decreased.

- Administrative tasks and paperwork requirements have decreased throughout the system.

- o Principal investigators have greater responsibility, flexibility, and control and fewer administrative requirements in the management of their research. They feel that this results in increased research productivity.

- o The university community feels a greater degree of trust in its ability to appropriately carry out and administer federally-sponsored research.

- o Relationships have improved between principal investigators and administrators on the campus and between university and federal officials.

- o The provision allowing investigators to establish related projects as a single administrative unit has not been used as often as expected.

Additional anecdotal information on the impacts of the new procedures is provided by the attached collection of statements by members of the university communities in Florida.

Data collection is continuing during 1987, with the next "readings" to be taken in April and in the Fall.

Research Roundtable
March, 1987

ATTACHMENT

February 1987

THE FLORIDA DEMONSTRATION PROJECT (FDP)

Statements by Members of the University Communities in Florida
on the Impacts of the Demonstration Project

I. Administration -- The major impact of the FDP on administrative tasks and requirements:

-- There is more time to DO science.

-- The FDP represents the single greatest step forward relating to grant administration that I have witnessed in the 11 years that I have been a faculty member at the University of Florida. This is my fourth R01 grant from NIH, and it has clearly been the easiest. I had a number of difficult budget transfers that needed to be made quickly and easily during the first month. I literally dreaded the thought of having to go through the paperwork that I have become accustomed to when making changes in NIH budgets. This time it was a pleasure!

-- My Department of Energy research project in nuclear physics has been a part of the FDP this year. This has proved to be a very positive arrangement, for the FDP has greatly reduced the bureaucratic headaches involved in managing a grant. In the past, requests I have made to DOE for reprogramming funds from one purpose to another have never been refused. However, getting the authorization to reprogram always was a headache, both for me and the DOE officials who had to handle the paperwork. I recall one particular case in which a vital piece of equipment failed just before an important experiment and we had to track down our technical monitor, who was on travel at the time, to get permission to buy a new unit, costing around $2000. This sort of pro-forma bottleneck no longer exists under FDP. I hope AFOSR follows suit.

-- Earlier this year I was awarded an NIH research grant. Unfortunately there was a clerical error in the announcement setting the money for travel under an adjacent heading. Despite many telephone calls to Washington we were unable to get any action to correct the mistake. Finally we were able to make a simple transfer here at the University under the FDP which was effected the next day. The ability to make simple proper changes without trouble and frustration is of immense value.

-- We realized a major savings in our DARPA/URI conducting polymer program through the flexibility possible under the FDP. We planned to purchase an IBM/Bruker Fourier-transform infrared spectrometer with the first year funds, which began in late September. In order to beat an announced price increase it was necessary to place a firm purchase order before 1 October 1986. I believe that under normal circumstances it would have been impossible to place the order so close to the start of a new project. That we were able to do so was of major importance to us. I estimate the savings as around $20,000. Moreover, as we did not have an

extra $20,000 in the budget, the real effect was to enable us to acquire a key piece of equipment that we would otherwise not have been able to afford.

-- It is very difficult to precisely estimate particular costs more than a year in advance of the expenditure. The FDP now makes it possible to make minor adjustments to cover unexpected cost overruns.

-- Purchases of equipment and supplies as needed in support of experiments on nuclear accelerators often have to be made on short notice, due to scheduling requirements on these facilities and the probability that the unexpected emergency nearly always happens. Under the FDP, we can now respond to these situations quickly and efficiently.

-- The proportion of time that a faculty member and/or principal investigator must spend with non-scientific paperwork is astounding. The FDP reduces paperwork, increases flexibility in the use of funds, and accordingly increases the efficiency in the use of these funds. The FDP is a major step in the right direction.

-- The FDP seems to have reduced by at least half the time I must spend in tracking my funds.

-- One of the major advantages of the FDP is the freedom to move monies to categories where there is need. Usually the time frame from application to award results in funds designated for equipment etc. that may possibly have been purchased in the meantime and now the needs are different from those originally designated. Many times a researcher will anticipate needing certain things only to find, once the project is actually started, that he requires other items or different personnel. Under the FDP, such changes are efficiently executed, thereby accelerating the research process.

-- Under the FDP, approval time is greatly reduced for rebudgeting and extensions of time. Previously, requests requiring agency approval took from 30-45 days. This has been reduced to 5 days or less. Local, faster approvals allow faculty needs to be better served, thus improving both faculty and administrator's attitudes toward grants administration.

II. Research Accomplishments -- The major impact of the FDP on the ability to carry out a high-quality and productive research program:

-- All of the research is much more flexible and therefore creative, as it ought to be.

-- The unexpected results from our research created an urgent need for new equipment which was essential for the development of a competitive enzyme-linked immuno assay for quantitation of plasma and platelet HLS antigens. The acquisition of this equipment under the FDP greatly facilitated the progress of our work.

-- The single greatest long-term effect is the increased possibility for collaborative efforts leading to that all-important "critical mass." This is due to 1) more time available to talk with scientists instead of doing paperwork and talking to administrators; and 2) increased flexibility to purchase supplies/equipment with multiple uses among collaborators. Previously, I would buy mine, he would buy his, resulting in duplication and fewer funds for new, creative enterprises.

-- The Relatedness Option under the FDP is an outstanding contribution to productive research. A principal investigator in chemicl engineering is using this option on his NSF and DOE grants. Both projects are related to the theoretical and computational modeling of the properties of solutions. The DOE work emphasizes using fluctuation solutions theory for describing a wide variety of properties and systems and includes molecular dynamics simulation to determine molecular structure and properties. The NSF work focuses on a particular class of systems, surfactant micelles, using molecular modeling and molecular dynamics simulations. Both projects are of interest to general engineering science and practice as well as for specific application to energy related activities. In fact, the NSF work grew out of research sponsored by DOE for enhanced oil recovery.

At present workers on both projects are familiar with both areas. The greatest benefit of establishing relatedness is that the molecular dynamics simulation efforts can be handled with more felxible accounting and lead to easier communication with external computers.

-- The FDP allows flexible creativity without a bureaucratically imposed "damper" on the intuitive and deductive processes that underliie scientific investigation. The management procedures are now easier and the morale of all involved, secretaries to researchers, is greatly improved.

-- The FDP allows the principal investigators involved in the daily activities of funded projects to make immediate decisions on the best way to accomplish the goals of the research objectives in the fastest, most efficient fashion. Greater flexibility makes it easier to find a solution to problems that arise during the term of a project.

III. Attitude -- The major impact of the FDP on attitudes toward the federal post-award administrative system, federal program officers, and local research administrators:

-- My attitude is much more favorable under the FDP because the management requirements are congruent with the conduct of research.

-- The FDP couldn't be any better. The requirements are perfect and relationships are just the way they should be--very helpful so as to see that science is done.

-- I am favorably impressed that the government would relinquish this much of its micromanagement lever. The new freedom under the FDP is far more conducive to rapid progress in research. My relations with my program officers have always been excellent and I have never felt inclined

to criticize them for the system. As researchers we now have to spend less time hassling local administrators and minor bureaucrats to get to do what we know needs to be done.

-- The impact of the FDP is entirely positive. It is the greatest step forward concerning grant administration. I am anxious to see all other investigators benefit from the FDP.

IV. Accountability -- The impact of the FDP on scientific and financial accountability:

-- I certainly see no reason to expect any decrease in fiscal or scientific accountability or responsibility. Scientists know that whether they can get another grant is going to depend heavily upon how they conduct the one(s) they currently have, the results obtained, and in general, their scientific productivity as evidenced by publication from the research in recognized scientific journals. I have every reason to believe that those who administer grants, such as persons in our sponsored research office, are eqully conscientious and competent. I see local control of grants as facilitating even more fine tuning of grant conduct. This will result in more productive scientific accomplishments and more efficient time management on the part of both scientific investigators and fiscal officers.

-- Most funded research is long-term. Most productive programs receive renewals, while unproductive programs do not. If a funded project is mismanaged, it will never be productive. The federal agencies would not know this until the project was completed under either the old system or under the FDP. Accountability is maintained by the peer review process when the grant comes up for renewal. If the funds were used wisely and the project has produced important results, then it may be renewed. If it was not a financially sound program, the project will not be renewed and the government will not continue to throw good money after bad. If, during the peer review, evidence is uncovered to suggest serious mismanagement, then the principal investigator, or the responsible parties, could be barred from receiving further federal support.

-- By requiring that we use local procedures to alter the disposition of funds, we are assigning our names, our most important assets as scientists. (What does it do to a career to have a name on a bad piece of research published in a journal?) We remain accountable for everything that we sign.

-- Accountability is maintained through the integrity of the investigator and his/her departmental administrators. Results are the bottom line. If money is spent foolishly, results will fade, this will soon be evident to all, and funding will terminate.

-- If financial accountability increased any more, it would be impossible to get research done. State and local procedures are more than sufficient for sound fiscal management.

APPENDIX B

Remarks and Related Correspondence by Senator Lawton Chiles to a Multi-University Working Group on Research Administration Reform

JOHN GLENN, OHIO, CHAIRMAN
LAWTON CHILES, FLORIDA
SAM NUNN, GEORGIA
CARL LEVIN, MICHIGAN
JIM SASSER, TENNESSEE
DAVID PRYOR, ARKANSAS
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WILLIAM S. COHEN, MAINE
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PAUL S. TRIBLE, JR., VIRGINIA
LEONARD WEISS, STAFF DIRECTOR
JO ANNE SARGENT, MINORITY STAFF DIRECTOR

United States Senate
COMMITTEE ON
GOVERNMENTAL AFFAIRS
SUBCOMMITTEE ON
FEDERAL SPENDING, BUDGET, AND
ACCOUNTING
WASHINGTON, DC 20510-6250

SUBCOMMITTEE
LAWTON CHILES, FLORIDA, CHAIRMAN
SAM NUNN, GEORGIA
CARL LEVIN, MICHIGAN
JEFF BINGAMAN, NEW MEXICO
WARREN B. RUDMAN, NEW HAMPSHIRE
TED STEVENS, ALASKA
JOHN HEINZ, PENNSYLVANIA
ROBERT F. HARRIS, STAFF DIRECTOR

March 26, 1987

Mr. Robert Johnson, Vice President of
Graduate Studies and Research
Florida State University
408 Westcott Building
Tallahassee, Florida 32306

Dear Bob:

I will be glad to provide a copy of my welcoming remarks to the representatives from the Florida university community as well as other states who gathered in Washington for a work session July 24, 1986.

I am delighted that initial meeting will bear fruit in the near future. I understand survey results from several major research schools around the country will be put together in a summary report. This is a good opportunity to repeat that the questions I posed that day remain important to the Congress.

The productivity of the federal dollar going to basic research is an important factor in our Nation's ability to sustain economic growth and compete internationally.

How much of the federally provided research dollar is going to administrative and regulatory cost? What changes can be made to improve research productivity? Which of these changes will require legislation? Our country's search for excellence in research needs answers to these questions.

I further understand concerns have been raised over how a report from the over-all group of institutions who have participated will be used. Since I am one who did encourage this effort to analyze costs, let me respond.

I appreciate the sensitivity of the estimates put forth by a survey of this kind. It would be an inappropriate use of the estimates to be contained in the report if they were employed without establishing their proper context.

The survey represents an initial good faith effort by those involved to develop data on the costs of certain

federal requirements associated with the conduct of research. As I indicated in my remarks last July, we have very little data about these costs now. Nevertheless, Congress and the Executive are making policy determinations.

The survey work is intended to begin scratching the surface. It is not intended to be definitive. What led me to invite research institutions to participate in the exercise was the frustration felt over the years whenever a change to OMB circular A-21 or other regulation relating to research is proposed. Too often the Executive branch of government has failed to generate the information needed to allow the federal government to assess the consequence of its proposals.

While I believe there is a commitment to fund the costs of federally sponsored research, Congress continues to be concerned over rising costs. For example, as the new Chairman of the Health, Human Services, and Labor Appropriations Subcommittee, I know the concern over "indirect costs" has not diminished. I strongly share the feeling that more of the federal dollar on research can go to performing actual science as opposed to administration.

This report, together with the comprehensive evaluation of the Florida Demonstration Project which will follow in the future will begin to give us a better understanding of how the federal role in research is operating. That is a worthy contribution.

I look forward to this beginning, and again, wish the group well.

With warm regards, I am

Sincerely yours,

Lawton Chiles

Lawton Chiles

Remarks by
Senator Lawton Chiles
July 24, 1986

Good morning. Welcome to steamy Washington. It is nice to see some familiar faces from Florida. I understand you all are here to work on generating some numbers. This is the right room. You are in the hearing room where the Budget Committee does its mark-ups. I hope you can get you work done a little faster than it usually takes us.

I want to offer you all some encouragement for what you are going to be doing this morning. First, let me say we have some very positive things going for us in the Florida Demonstration. Florida Chancellor Reed is committed and enthusiastic. The Florida schools are excited. Thanks to some folks like Bob Johnson, we have had involved leadership from the grassroots all the way to the top of the system on this one.

The National Academy of Science is a key sponsor and has made this project a priority. That is important. We have Dale Corson to thank for that.

We have five federal agencies who are cooperating. I am told they even think the demonstration is their idea.Don't change that. We have a near-miracle about to happen.

And we have the support and leadership of the National Science Foundation. The project is an outgrowth of experimental work they started in Florida some four years ago. We in Florida have worked with Dr. Newton before. He is an agent of change and a positive force.

Among other things, I see the Florida Demonstration project as an opportunity to answer questions that I and others have been asking for over ten years. How much of that research dollar is going to administrative and regulatory costs? What changes can be made to improve research productivity?

The productivity of the federal dollar going to basic research is an important factor in economic growth. Our nation's ability to compete internationally depends on basic research.

The answers to my questions get to the nuts and bolts of how things are done. You all have an opportunity here to get at those answers. What I want to say is that Congress needs that information. We really don't have it now.

As an example, I am a member of the Appropriations Committee. We just finished yet another battle over OMB Circular A-21. Yet another battle over what the right level of indirect costs going to basic research should be. We need the right information to handle that question. We do not have it now. You all have an opportunity to develop it.

I think we have a different kind of commitment from the Director of OMB than we have had in the past. My staff will share with you a letter he sent me recently that indicates a new willingness to consider the regulatory issues in sponsored research.

Let me add, I anticipate legislative recommendations coming out of the Florida Project. That is why this project needs to be evaluated from beginning to end. I very much hope we can take the good things we learn from this demonstration and expand it nationally.

I wish you all good luck. Have a good work session.

APPENDIX C

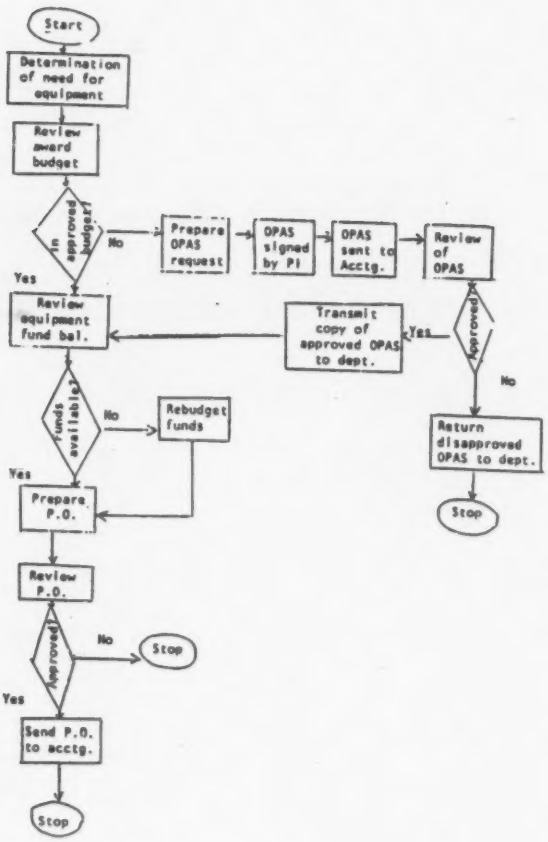
DIAGRAMS OF THE ADMINISTRATIVE TRANSACTIONS SURVEYED

AND

DIAGRAMS OF SIMPLIFIED EQUIVALENTS

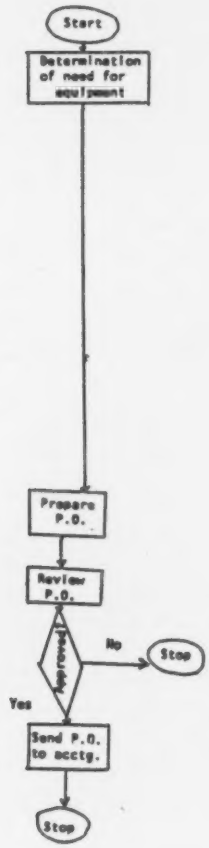
PURCHASING GENERAL PURPOSE EQUIPMENT UNDER AN NSF GRANT

CURRENT PROCEDURES



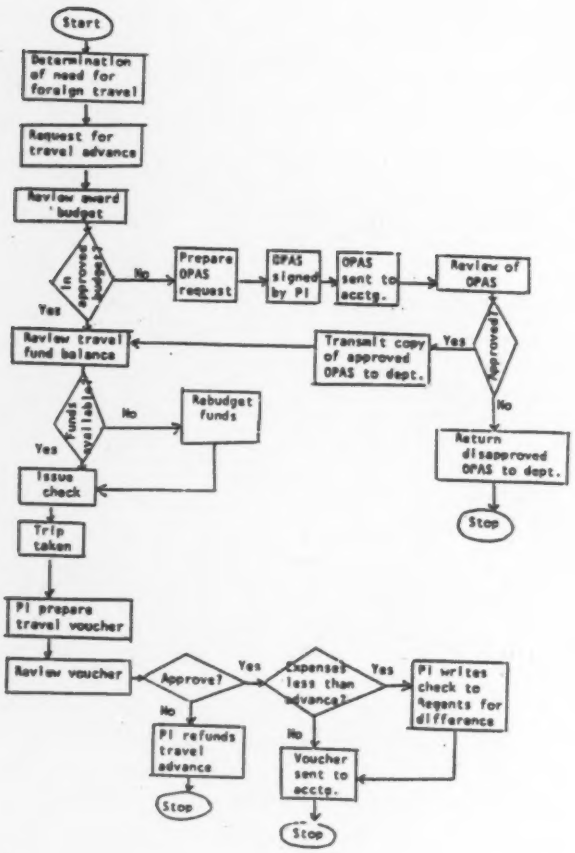
PURCHASING GENERAL PURPOSE EQUIPMENT UNDER AN NSF GRANT

PROCEDURES REMAINING AFTER ELIMINATION OF PRIOR APPROVAL REQUIREMENTS



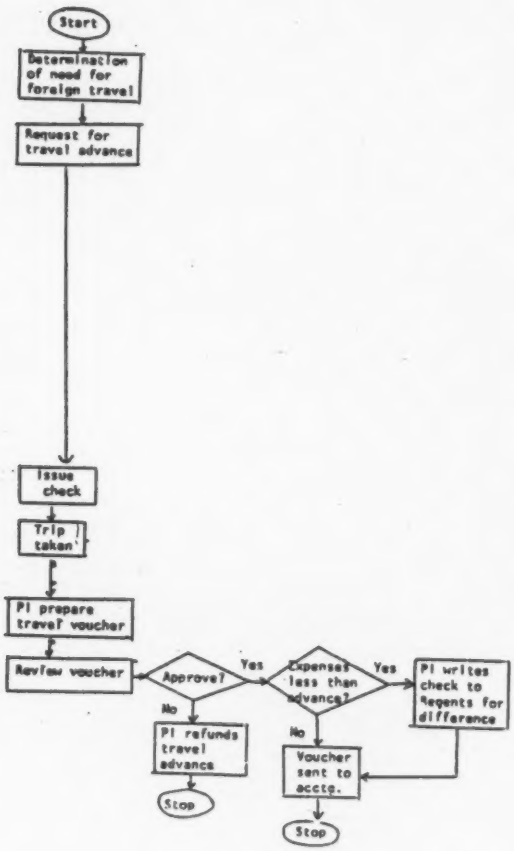
CHARGING FOREIGN TRAVEL TO AN NSF GRANT

CURRENT PROCEDURES



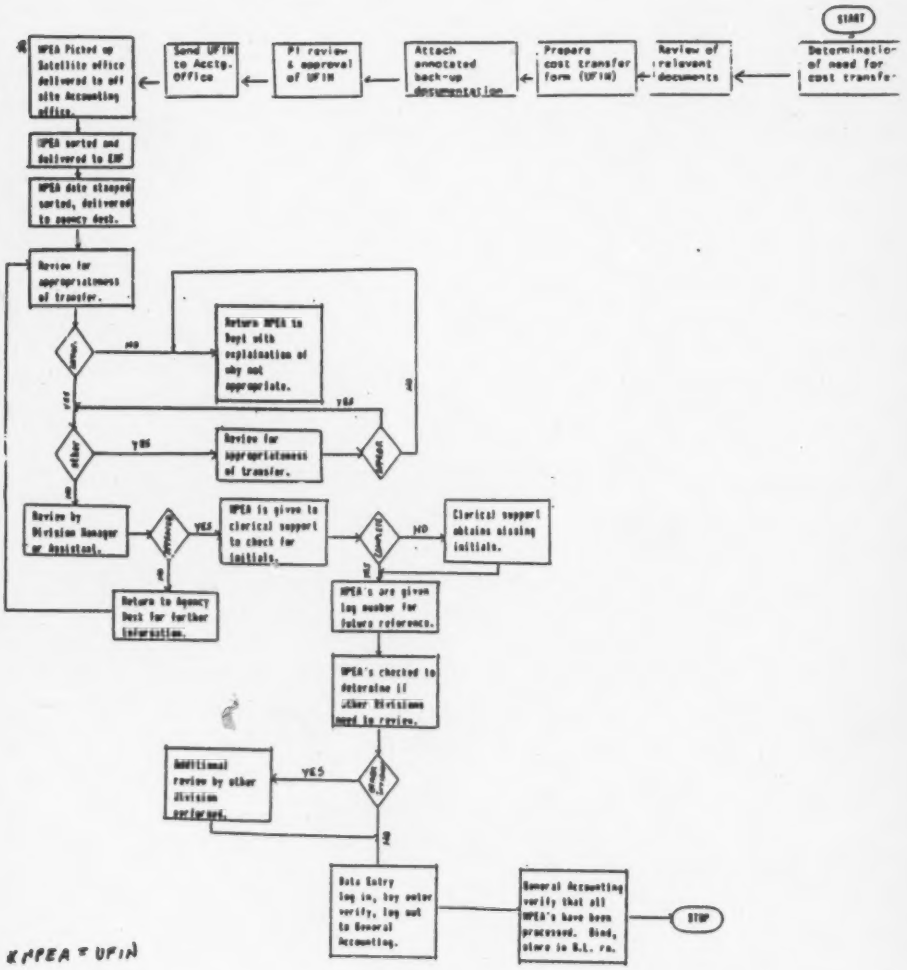
CHARGING FOREIGN TRAVEL TO AN NSF GRANT

PROCEDURES REMAINING AFTER ELIMINATION OF PRIOR APPROVAL REQUIREMENTS



PROCESSING ONE NON-PERSONNEL COST TRANSFER BETWEEN TWO GRANTS

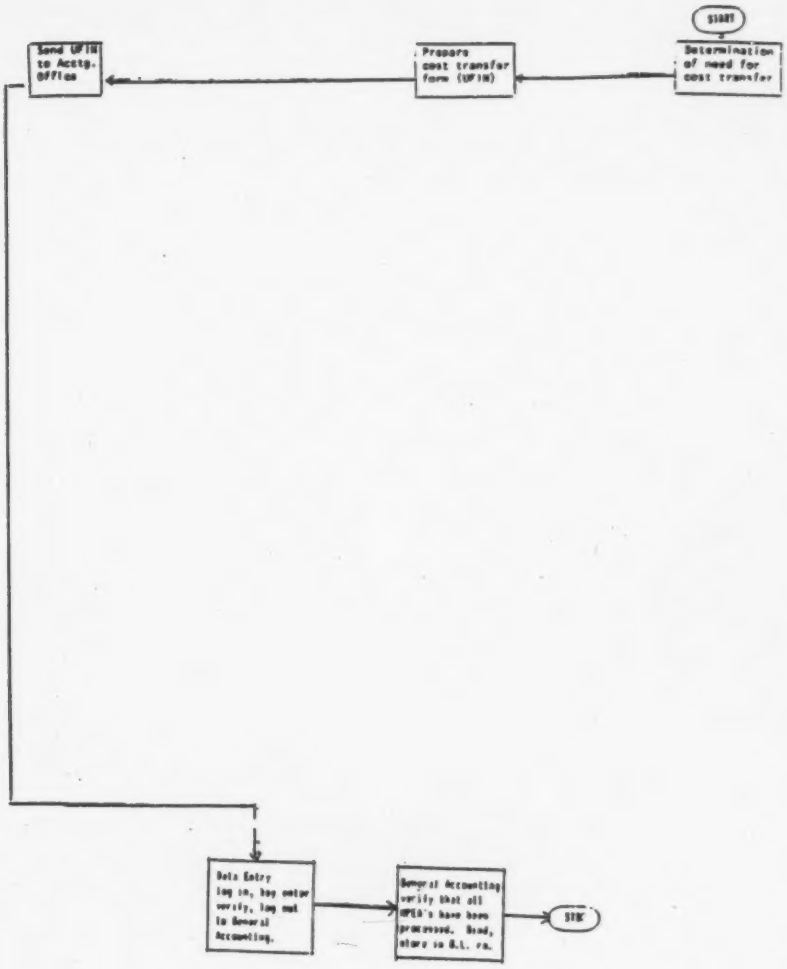
CURRENT PROCEDURES


START
Determination of need for cost transfer
Review of relevant documents
Prepare cost transfer form (UFIN)
Attach annotated back-up documentation
PI review & approval of UFIN
Send UFIN to Acctg. Office
NPEA Picked up Satellite office delivered to off site Accounting office.
NPEA sorted and delivered to EHF
NPEA date stamped sorted, delivered to agency desk.
Review for appropriateness of transfer.
Correct?
NO
Return NPEA to Dept with explanation of why not appropriate.
YES
Other
YES
Review for appropriateness of transfer.
Correct?
NO
YES
Review by Division Manager or Assistant.
Approved?
YES
NPEA is given to clerical support to check for initials.
Complete?
NO
Clerical support obtains missing initials.
YES
NO
Return to Agency Desk for further information.
NPEA's are given log number for future reference.
NPEA's checked to determine if other Divisions need to review.
Additional review by other division performed.
YES
Needed?
Data Entry log in, key enter verify, log out to General Accounting.
General Accounting verify that all NPEA's have been processed. Bind, store in G.L. rm.
STOP

*NPEA = UFIN

PROCESSING ONE NON-PERSONNEL COST TRANSFER BETWEEN TWO GRANTS

PROCEDURES REMAINING AFTER DETERMINATION OF RELATEDNESS OF THE GRANTS


START
Determination of need for cost transfer
Prepare cost transfer form (UFIN)
Send UFIN to Acctg. Office
Data Entry log in, key enter verify, log out to General Accounting.
General Accounting verify that all UFIN's have been processed. Read, store in G.L. re.
STOP

APPENDIX D

SUMMARY SURVEY DATA
AND
DATA EXTRAPOLATIONS

GRANTS ADMINISTRATION SURVEY
DESCRIPTION OF SURVEYED ADMINISTRATIVE ACTIONS

1. Annual Continuation Proposals - NIH noncompeting renewal proposals were analyzed. Virtually all federal agencies have a similar requirement. Variance among agencies was taken into account in extrapolation.

2. Prior Approval Requests - This includes prior approval requests for only general purpose equipment and foreign travel. There are numerous other items that require prior approval on some grants such as: special purpose equipment in excess of $1,000, equipment in excess of 125% of approved equipment budget, travel in excess of 125% of approved travel budget, etc., none of which were analyzed or included in the extrapolation process.

3. Salary Cost Allocation - This is the allocation of salary of individuals working on more than one project of the same Principal Investigator.

4. Cost Transfers - This is the administrative transfer of an expenditure from one grant account to another.

5. Annual Financial Reports - These data include only annual financial reports. Quarterly, semi-annual, and final financial reports are not included in these data or the extrapolation from them.

GRANT ADMINISTRATION SURVEY

SUMMARY DATA

ACTION		HOURS REQUIRED		
		TOTAL	PI	OTHER
Non-Competing Proposals (NIH)	Average	24.75	15.57	9.18
	High	44.00	33.60	32.40
	Low	10.09	3.00	0.78
Foreign Travel Approval	Average	4.41	1.35	3.06
	High	9.51	4.00	5.51
	Low	0.54	0.00	0.52
General Purpose Equipment Approval	Average	4.66	1.77	2.89
	High	15.39	10.68	7.58
	Low	2.51	0.00	1.08
Cost Transfer	Average	1.73	0.11	1.63
	High	4.55	0.63	4.39
	Low	0.39	0.00	0.38
Financial Status Reports SF 269	Average	8.38	0.03	8.35
	High	21.25	0.25	20.96
	Low	3.08	0.00	3.08
Salary Allocation	Average	4.03	0.07	3.96
	High	17.73	0.80	17.00
	Low	1.91	0.00	1.83

GRANTS ADMINISTRATION SURVEY
EXTRAPOLATIONS FROM SURVEY RESULTS

Nation-wide Time and Cost Calculations

DATA FOR PRESENT FEDERAL REQUIREMENTS

	ACTIONS	Hourly Rate (A)	#/AWD (B)	Average Unit Time HRS. (C)	Time Per 50,000 AWDS HRS. (D)	Time Spent By Scientific P.I. Per 50,000 AWDS HRS. (E)	Cost Per 50,000 AWDS (F)
	Annual Continuation Proposals	$35/HR	0.6	24.8	744,000	468,000	$26,040,000
	Prior Approval Requests	$30/HR	3	4.5	675,000	240,000	$20,250,000
	Salary Cost Allocations	$30/HR	4	4.0	800,000	14,000	$24,000,000
	Cost Transfers	$25/HR	5	1.7	425,000	28,000	$10,265,000
5.	Annual Financial Reports	$20/HR	0.5	8.4	210,000	1,000	$ 4,200,000
	Totals				2,854,000	751,000	$85,115,000

Column A: An estimated composite hourly rate of pay for the various personnel involved in processing the transactions (based on rough approximations supplied by some of the survey schools).

Column B: The number of transactions per award, per year, based on experience of survey schools.

Column C: The average number of hours per transactions based on experience of survey schools

Column D: Total number of hours for each action based on 50,000 awards per year.

Column E: Total hours spent on each action by the scientific principal investigator, for 50,000 active grants nationwide, based on extrapolation of actual survey data.

Column F: Total cost for each action based on 50,000 awards per year.

NOTE:
Extrapolations are based on 50,000 federal grants per year to universities, nationwide. The number 50,000 was developed by using the approximate number of active grants (37,000) reported annually by the five agencies participating in the Florida Demonstration Project; and by employing the conservative assumption that those awards represent 75% of the active federal grant total.

GRANTS ADMINISTRATION SURVEY
EXTRAPOLATIONS FROM SURVEY RESULTS

Nation-wide Time and Cost Calculations

Simplified System Based on Appropriate Accountability and Good Business Practices

	ACTIONS	Hourly Rate (A)	#/AWD (B)	Average Unit Time HRS. (C)	Time Per 50,000 AWDS HRS. (D)	Time Spent By Scientific P.I. Per 50,000 AWDS HRS. (E)	Cost Per 50,000 AWDS (F)
1.	Annual Continuation Proposals	$35/HR	0	0	0	0	$ 0
2.	Prior Approval Requests	$30/HR	3	1.8	270,000	96,000	$ 8,100,000
3.	Salary Cost Allocations	$30/HR	4	2.0	400,000	7,000	$12,000,000
4.	Cost Transfers	$25/HR	5	0.7	175,000	11,000	$ 4,375,000
5.	Annual Financial Reports	$20/HR	0	0	0	0	$ 0
	Totals				845,000	114,000	$24,475,000

Column A: An estimated composite hourly rate of pay for the various personnel involved in processing the transactions (based on rough approximations supplied by some of the survey schools).

Column B: The number of transactions per award, per year, based on experience of survey schools.

Column C: The average number of hours per transactions based on experience of survey schools

Column D: Total number of hours for each action based on 50,000 awards per year.

Column E: Total hours spent on each action by the scientific principal investigator, for 50,000 active grants nationwide, based on extrapolation of actual survey data.

Column F: Total cost for each action based on 50,000 awards per year.

GRANTS ADMINISTRATION SURVEY
EXTRAPOLATIONS FROM SURVEY RESULTS

Nation-wide Time and Cost Calculations

Potential Redirection*/Reduction of Time and Cost:
Present Federal System vs Simplified System

ACTIONS	Potential Redirection or Reduction of: Total Time Per 50,000 AMDS HRS.	Time Spent By Scientific P.I. Per 50,000 AMDS HRS.	Total Cost Per 50,000 AMDS
. Annual Continuation Proposals	744,000	468,000	$26,040,000
. Prior Approval Requests	405,000	144,000	$12,150,000
. Salary Cost Allocations	400,000	7,000	$12,000,000
. Cost Transfers	250,000	16,000	$ 6,250,000
5. Annual Financial Reports	210,000	1,000	$ 4,200,000
Totals	2,009,000	636,000	$60,640,000

*NOTE: Many research staff on federally funded grants expend significant time on administrative activities. Thus, reduced administrative requirements will not result in a corresponding proportional reduction of separately accounted administrative costs. Rather, scientists will spend more time doing research. For this reason, actual cost reduction potential will vary from university to university and is difficult to estimate.

Florida State
UNIVERSITY

Office of the Vice President
Research and Graduate Studies
Tallahassee, Florida 32306-1047
904/644-5260

May 5, 1987

The Honorable Lawton Chiles
U. S. Senator
Russell Senate Office Building
Room 250
Washington, D.C. 20510

Dear Senator Chiles:

As I mentioned to you in my letter of April 13, 1987, and again in my testimony before your sub-committee on Federal Spending, Budget, and Accounting on April 14, 1987, I am forwarding to you supplementary reports to the report entitled, Research Productivity and Administration Cost: An Analysis of Selected Federally Prescribed Research Administration Activities. These supplementary reports are prepared by the University of California, and Columbia University. Also included is a letter from Research Foundation of State University of New York in support of the Florida Demonstration Project. I believe you will find these reports interesting and request that they be included in the Congressional record as part of the hearing record of April 14, 1987.

I want to thank you for taking the time to conduct these hearings on April 14, 1987. I believe that they were indeed productive. We will continue to work with you and others to insure the successful completion of this program and hopefully an expansion of the program to other universities and federal agencies.

Sincerely,

Robert M. Johnson
Vice President
Research and Graduate Studies

RMJ:ph

cc: David Mears, University of California
Jim Lewis, Columbia University
Peter Tenbau, Research Foundation, State University of New York
Chancellor Charles Reed, Florida State University System
Dr. Robert Newton, Government/University/Industry Research Roundtable
Dr. Donald Phillip, Government/University/Industry Research Roundtable

Enclosures

COLUMBIA UNIVERSITY

GRANTS ADMINISTRATION STUDY

Prepared by

James P. Lewis
Director, Office of Projects and Grants

Office of Projects and Grants
Columbia University

April 14, 1987

Submitted to Senate Hearing on University Research Productivity
Senate Subcommittee on Federal Spending, Budget and Accounting
Senator Lawton Chiles, Chairman

Columbia's Time-and-Motion Study to Prove the High Cost of Research Administration

Introduction

In July, 1986, I received a telephone call from Dr. Robert Newton, Head of the Policy Office of the National Science Foundation. Dr. Newton and I are old friends—we have worked together on several projects over the last ten or so years. Whenever he needed a university to help him prove a point, he often called on Columbia, and Columbia willingly provided assistance. The Office of Projects and Grants (OPG) participated in his two pilot studies for the beginnings of the Organizational Prior Approval System (OPAS), now an established part of NSF administrative procedure. He had asked for studies to prove that the OPAS saves precious research administrative time and that it saves money. He also asked this office to prepare a step-by-step outline of all the procedures and offices at Columbia involved in all phases of research administration. (This proved to be useful as a beginning for our time-and-motion study). He also asked me to conduct a study to see how many grants and contracts at Columbia's Lamont-Doherty Geological Observatory were related—that is: were essentially the same research project (or related in other ways) funded by more than one funding agency. This proved useful for his "relatedness" concept which is part of the current NSF OPAS and is given new prominence in the Florida Development Project because five federal agencies are participants.

So it was not a surprise when Dr. Newton called me in July of 1986 to ask for Columbia's help in a new, never-before-attempted study.

All along, Bob has been moving slowly but steadily towards the concept of grants without administrative controls, with flexibility in accountability for dollars spent but with accountability for the research accomplishment. The present NSF OPAS was a step in that direction. This has been expanded now (since January of 1986) with the Florida Development Project in which all Florida State Universities dropped all administrative approvals and requirements and these were applied across five federal agencies: the National Science Foundation, the National Institutes of Health, the Department of Energy, the United States Department of Agriculture, and the Office of Naval Research. A principal investigator was free to set up only one account for his project even if it was partially funded by two to five of the participating agencies! Bob called me last July because it was time for the Florida experiment to be expanded to more federal agencies and to more universities, but this probably could not happen without some kind of proof that the administrative procedures eliminated in the study would save time and money and therefore could act to increase research productivity, lower indirect cost rates, and cut the overall cost of conducting a research project. Backed by the Government-University-Industry Research Roundtable of the National Academy of Sciences (NAS), Bob Newton enlisted the aid of several universities: the University of California, Columbia University, Florida State University, the University of Florida, the Johns Hopkins University, the University of Miami, the State University of New York and the University of Virginia, to participate in a time-and-motion study of several administrative procedures to cost out the number of unit hours and dollars to perform each procedure, and then to extrapolate this for all grants and contracts to reach

total estimated cost savings figures. An attempt would be made, for example, to determine the cost of the submission of a yearly noncompeting proposal to agencies like the National Institutes of Health and the National Science Foundation. Or to determine the cost to obtain special permission to buy a piece of research equipment not itemized in grant budgets. The project has never before been accomplished and was viewed with great trepidation by all participants. Here at Columbia it would require help from Columbia's Controller's Office and from several science departments (their administrators and investigators). Richard Ruttenberg, Associate Controller of Columbia University, was a willing participant and he did the studies for the administrative procedures which are Controller's Office ones.

The project for all partipants was given a large impetus by a trial time-and-motion study conducted by the University of California. It was a step-by-step procedure which proved that creditable results could be obtained. Mr. David Mears, University Contracts and Grants Coordinator and Bill Sellers, Contracts and Grants Officer, provided the initial prototypes.

Getting the Columbia Project Started

Looking over the University of California prototype studies, Richard Ruttenberg, I, and Beth Israel and Patsy Martin-King of my office considered which studies Columbia might attempt. The task seemed formidable. Some of the questions to be answered before deciding on the studies were: What Columbia departments should we use? What salary rates do we use? How is the indirect cost rate to be used in the study? Should we consider more than salary and associated costs? How is the study to be coordinated among all the Columbia units involved?

Since the study needed to be accomplished quickly to accomodate the NSF and NAS, we decided to use easily accessible research departments with administrative people to whom OPG related well—these had to be representative of science at Columbia. We finally agreed to use the Chemistry Department, the Biological Sciences Department, the Lamont-Doherty Geological Observatory, Nevis Laboratory of the Physics Department, and the Mechanical Engineering Department. Other very obvious research units, like the Health Sciences Division, could not be included because of the time limitation.

In a meeting with Richard Ruttenberg and OPG staff it was finally agreed that the following ten cost studies would be conducted:

1. Noncompeting proposal preparation
2. Foreign travel approval
3. Equipment approval
4. Cost-sharing action
5. Contract voucher preparation
6. Report of expenditures preparation
7. Inventory of purchased equipment
8. Processing of a cost-transfer
9. Preparation of cash transaction report
10. Screening of requisitioned equipment

Studies one through four listed above were to be conducted by OPG and the remainder were to be prepared by the Controller's Office. Additional study questions and their answers are detailed below:

1. What hourly salaries should be used and how to determine them? It was agreed that salary averages were to be used. The Personnel Office provided average salaries in the science departments for all professorial levels. Likewise, similar averages were obtained for all science department major and minor administrators. The same averages were obtained for the applicable components of the Controller's Office and for this office.

2. It was decided that three different departmental cost studies would be conducted for each administrative action. These would be averaged to obtain one final study for each administrative action. In this way we would be overcoming the inherent differences in the way departments administer research projects.

3. The primary cost elements which could be listed are salaries, fringe benefits, indirect costs and other non-salary costs like computer paper and time, office supplies, duplicating costs, etc. It was decided to use only salaries, fringe benefits, and indirect costs to simplify the studies.

4. A major problem in the use of Columbia's indirect cost rate was resolved by Richard Ruttenberg. Clearly one could not use the entire indirect cost rate because some of the people's salaries to which it would be applied are in the rate. The rate was to consist then only of the components for general administration and operations and maintenance. This meant the rate would drop from 74.1% of modified total direct costs (MTDC) to 47.1% of MTDC. This latter rate was used in the studies.

5. Finally, it was decided to provide, as California did in its prototype study, separate cost totals for the grand totals and for the part of the administration caused solely by federal regulations.

With all the foregoing determined, the project was started. Each study was blocked out first in large steps, with all Columbia-involved units designated, and also all individuals cited who perform any part of the process. When this was determined to accurately represent the entirety of the administrative action, it was broken down into very small steps. These steps were assigned to units and people according to who performed them. At this point, in a complicated study like the Cost of Preparing a Continuation Proposal, there were as many as 100 steps. After a review for accuracy and completeness, the steps were recombined into sensible separate actions performed by one person. If another person of a different salary range was involved, another step was created. The three separate studies for each administrative action representing three different departments were averaged to get one. These studies were all performed on personal computers using the Lotus 1-2-3 program to automatically accumulate totals with cell formulas. To provide an indication of what a portion of the study of the Cost of the Submission of a Noncompeting Continuation Proposal looks

like, for example, I include the first eleven steps (abbreviated) of that study as follows:

Noncompeting Proposal Preparation

Action	Person	Mnts Req'd	Hourly Rate	Dollars	Salary & Fringe (27%)
1. OPG receives NIH kits and listing; responsible PO verifies proposal due is on NIH's list; responsible PO generates NIH termination listing for cross-check that proposal is indeed due and gives appropriate PO face pages/kit for distribution to PI's; contacts NIH on missing or unnecessarily included face pages	Proj. Off. (PO)	60	$19.45	$ 19.45	$ 24.70
2. OPG reminds PI proposal is due and sends PI the proposal kit	PO/APO	10	$15.64	$ 2.61	$ 3.31
3. OPG verifies receipt of kit	APO	5	$10.07	$ 0.84	$ 1.07
4. PI drafts description and work progress section of proposal	PI	660	$30.63	$336.93	$427.90
5. PI informs sec'y of budgetary needs	PI	15	$30.63	$ 7.66	$ 9.73
6. Sec'y drafts budget for PI review	PI's Sec'y	120	$20.50	$ 41.00	$ 52.07
7. Budget and project description sections of proposal are typed	PI's Sec'y	45	$20.50	$ 15.38	$ 19.53
8. PI reviews typed sections	PI	17	$30.63	$ 8.68	$ 11.02
9. Sec'y makes required changes and sends draft proposal to OPG	PI's Sec'y	17	$20.50	$ 5.81	$ 7.38
10. Draft proposal is reviewed in OPG and PI/Sec'y informed of required changes	PO/APO	30	$15.64	$ 7.82	$ 9.93
11. Proposal package and forms completed (includes proposal routing sheet/cost-sharing form #1, etc.)	PI's Sec'y	30	$20.50	$ 10.25	$ 13.02

(Indirect cost was added at the end of the study at the rate of 47.1%).

Eventually, this study became 33 steps long. The result is included below.

Columbia Findings

1. The primary per unit results follow:

A. Noncompeting proposal preparation	-	$978.57
B. Foreign travel approval	-	224.41
C. Equipment approval	-	372.02
D. Cost-sharing action	-	109.41
E. Contract voucher preparation	-	105.24
F. Preparation of report of expenditures	-	319.50
G. Inventory of purchased equipment	-	20.76
H. Process OTPS cost transfer	-	53.97
I. Process quarterly cash transaction report	-	306.06
J. Central screening of requisitioned equipment	-	27.54

2. The per-unit costs these ten studies show, when multiplied by all Columbia agreements or transactions, indicate that total cost savings of $2,047,000 would result. The following extrapolations show how these totals were obtained:

	Number	Cost
A. Noncompeting Proposal		
Number of continuation proposals	515	
Unit cost		$ 978.57
Unit cost times number of proposals		$ 503,964
B. Foreign Travel Approval Action		
Number of agreements	1,313	
Number of approvals per award	.22	
Number of approvals per year	289	
Unit cost		$ 224.41
Unit cost times number of approvals		$ 64,823
C. Equipment Approval Action		
Number of agreements	1,313	
Number of approvals per award	1.08	
Number of approvals per year	1,418	
Unit cost		$ 372.02
Unit cost times number of approvals		$ 527,524
D. Cost-Sharing		
Number of cost-sharing awards	791	
Unit cost		$ 109.41
Unit cost times number of awards		$ 86,543

	Hours	Cost
E. Preparation of Contract Voucher		
Number of vouchers processed, annually	2,865	
Unit preparation time, per study	4.16	
Unit cost, per study		$ 105.24
Total Hours and Cost, annually	11,918	$ 301,513
F. Preparation of Report of Expenditures (ROE)		
Number of ROE's, annually	650	650
Unit preparation time, per study	11.26	
Unit cost, per study		$ 319.50
Total Hours and Cost, annually	7,319	$ 207,675
G. Inventory of Purchased Equipment		
Number of units inventoried, annually	12,600	12,600
Unit process time, per study	.80	
Unit cost, per study		$ 20.76
Total Hours and Cost, annually	10,080	$ 261,576
H. Process OTPS Cost Transfer		
Number of awards	1,313	1,313
Estimated number of transfers per award, annually	1	1
Total transfers, annually	1,313	1,313
Unit process time, per study	1.12	
Unit cost, per study		$ 53.97
Total hours and cost, annually	1,471	$ 70,863
I. Process Quarterly Cash Transaction Report		
Number of letters-of-credit	13	13
Quarter/Year	4	4
Total reports, annually	52	52
Unit process time, per study	11.16	
Unit cost, per study		$ 306.06
Total hours and cost, annually	580	$ 15,915
J. Central Screening of Requisitioned Equipment		
Number of awards, annually	1,313	1,313
% requiring central screening per award	20%	20%
Total screenings, annually	262	262
Unit process time, per study	.73	
Unit cost, per study		$ 27.54
Total hours and cost, annually	191	$ 7,215

3. Based on the Columbia studies, it is evident that at least $100,000,000 could be saved at research colleges and universities throughout the country if these ten federal administrative requirements were eliminated. This $100,000,000 figure is arrived at as follows: in 1985 the top 100 research and development institutions totaled $5,462,453,000 in research expenditures (NSF, Division of Science Resources Studies). Columbia's sixth place amount in this listing was $127,331,000 or 2.33% of the total. Extrapolating the $2,047,000 savings projected at Columbia to the top 100 institutions, one realizes a potential savings of approximately $88,000,000 which would easily be $100,000,000 for all institutions beyond the top 100.

4. It is important to note that this $100,000,000 total is a conservative, understated figure for two reasons:

   A. Only salaries, fringe benefits and indirect costs are accumulated on the Columbia studies. There are a variety of other costs which could be included—such as duplication costs, computer machine time and related expenses, and office expenses.

   B. Only ten studies are cited to produce the $100,000,000 savings. The number of federal administrative requirements which might be removed is perhaps two to three times the ten we studied at Columbia.

5. The amount of faculty time involved in three of the studies performed at Columbia is considerable:

	Total hours	Faculty hours	% of total
A. Noncompeting proposal preparation -	20.28	11.70	58
B. Foreign travel approval -	7.36	1.95	27
C. Equipment approval -	10.32	2.78	27

(For the other studies the faculty time involvement is negligeable). The dollars saved are considerable for faculty time:

	Total Savings	Faculty Savings	% of Total
A. Noncompeting proposal preparation -	$503,964	$344,812	68.4
B. Foreign travel approval -	64,823	32,236	49.7
C. Equipment approval -	527,524	225,517	42.8

Total dollars saved related to faculty time are $602,565, or almost 30% of the $2,047,000 saved at Columbia for the ten studies.

6. The $100,000,000 figure mentioned above represents savings in both direct and indirect costs. Any direct dollars saved would result in more dollars assignable to research projects. The indirect cost savings would be considerable but, unfortunately, could not be immediately recovered.

Much of the faculty time saved (which is in the departmental administration portion of indirect cost) would be immediately realized, although not recoverable. The other indirect cost savings are essentiallly fixed costs, not incremental costs, so these would be realized only over a longer period of time. These fixed costs are the result of many years of federal regulation buildup—one could not expect them to be immediately "saved." One fact is certain—if these regulations were eliminated, indirect costs would immediately begin to drop after many successive years of increase. We would, at long last, initiate a drop in the percentage of total R&D funds assignable to indirect costs.

Implications

The findings cited above imply the following:

1. The costs of research, both direct and indirect, can be substantially decreased if needless federal regulations and requirements are eliminated. (See section 3, above).

2. Most importantly, research productivity can be increased when regulations and requirements which involve the faculty are eliminated. (See section 5, above).

3. With lower indirect cost rates in the near future, the percentage of research project dollars taken up by indirect costs would drop. This means that federal agencies like the National Institutes of Health and the Office of Management and Budget could stop raiding indirect costs by recommending or placing arbitrary caps on indirect cost components as was done recently with transmittal memorandum number three, which revised OMB Circular A-21 to place a cap on departmental administration.

4. The cost savings on the university side would trigger similar savings on the federal side.

5. With the elimination of needless federal regulations like these, we would be taking positive action to reduce bureaucratic accretion in government and university procedures for sponsored research. This was the subject of the much publicized Government-University-Industry Research Roundtable forum held at the National Academy of Science in June of 1985, and has been much discussed by various study groups before and after that time.

6. With the elimination of needless federal requirements like the ten that Columbia studied and like the ones eliminated in the Florida Development Project, there would be increased emphasis on the investigator's research results, rather than on how he or she spent the project dollars. The "project audit" would relate solely to how much research progress was made and not to whether or not a doubtfully beneficial approval was obtained.

7. There has been much criticism from the Office of Management and Budget and some of the federal funding agencies about how research universities do nothing to help lower research administrative costs in an effort to reduce indirect cost rates. This study is a first-time effort where a team of universities have willingly and voluntarily put forth a major effort to prove these kinds of costs can be reduced.

8. Similarly, this study marks the very first time that an effort has been made to apply logical time-and-motion principles to determine the costs of individual administrative regulations. Once needless, meaningless federal regulations are identified (as they have been in the Florida Development Project), cost studies can be conducted to estimate cost savings that would result if the regulations were eliminated and to estimate increases in research productivity.

James P. Lewis
Director, Office of Projects and Grants
March 25, 1987

UNIVERSITY OF CALIFORNIA

GRANTS ADMINISTRATION STUDY

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Senate Subcommittee on Federal Spending, Budget and Accounting
Senator Lawton Chiles, Chairman

TABLE OF CONTENTS

Executive Summary.....1

Overview.....2

Appendices..... 6

A. Cost Transfer Study.....7

B. Salary Allocation Study.....14

C. Proposal Processing Study.....21

D. Foreign Travel Approval Study.....28

E. General Purpose Equipment Approval Study.....34

F. Financial Reporting Study.....39

G. Letter of Credit Reporting Study.....42

EXECUTIVE SUMMARY

The Nation's need to maintain competitiveness in the climate of major federal budget deficits increases the pressure for ever greater research returns from the federal investment in academic research.

Responding to this concern, Senator Lawton Chiles (Florida) and Dr. Dale Corson, Chairman of the Government-University-Industry Research Roundtable, have encouraged universities and federal agencies to examine the federal/university research award and administration systems, and to identify changes that would improve productivity.

A model federal research grant with terms revised to increase research productivity has been devised and is now being demonstrated in the State of Florida. Eight other universities in various states conducted studies to document all of the steps, processes, forms, time and resources required to satisfy certain federal grant conditions, some of which are modified in the Florida Demonstration.

FINDINGS:

The studies, including discussions with faculty who are the doers of research, showed that the numerous administrative controls create counterproductive obstacles to effective management, and foster a negative rather than a positive, supportive research environment. The controls frequently have effects which are the opposite of the stated purpose. Equipment is not shared because of the rules. Discounts on equipment purchases are lost because a grant is received after the discount period. Collaboration and cooperation among faculty are impeded because of project-by-project accounting requirements.

RECOMMENDATIONS:

Based on the results of this survey, the following recommendations are offered:

RECOMMENDATION 1: The Florida Demonstration Project should be expanded to involve additional universities, and include research contracts as well as grants.

RECOMMENDATION 2: The participating agencies and grantee institutions should continue to work with Congress and OMB in enhancing the Project.

RECOMMENDATION 3: The Government-University-Industry Research Roundtable should invite other federal agencies to join with the current five agencies in participating in the Project under the same set of terms and conditions.

RECOMMENDATION 4: The participating agencies and universities should continue to work with the Congress and OMB towards the goal of improvement in achieving a federal-wide, standardized, simplified system of research award administration.

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OVERVIEW

1. BACKGROUND: What the Study Was Designed to Accomplish

The basic idea behind the Florida Demonstration Project (FDP) is to change the Federal-University research support system to meet the needs of those whom the system is designed to support, namely, individual scientists and researchers. The assumption behind this basic idea is that such a change will contribute to an improvement in the research environment and ultimately foster the growth of knowledge.

The FDP is an outgrowth of many years of experience of people involved in examining the federal research funding system, particularly from the vantage point of the National Science Foundation and, more recently, the National Academy of Sciences' Government-University-Industry Research Roundtable. This experience points up one large difference between the way university scientists conduct research programs and the way federal agencies fund research projects: scientists generally view their own individual grants and contracts as short-term, partial support for ongoing, multifaceted programs, whereas federal agencies are constrained by statute and regulation to require technical reporting and financial accounting for an artificially defined part of a program called a "project". To put it simply, federal agencies (when they fund university research) require principal investigators to be held accountable for an abstraction that has little meaning from the principal investigator's point of view. This abstract entity, the "project," is supposed to be separable from any and all other "projects" and is itself separated into annual (or even shorter) time increments.

What principal investigators need is for federal agencies to understand the nature of an ongoing, multifaceted research program, and to write basic award terms accordingly. Such basic award terms would be the same for all agencies and for all universities, would allow research programs to be the unit of technical reporting and financial accountability, and would expand budget periods from one year to three or more years. The set of terms being used in the Florida Demonstration is a major step toward this goal: five agencies are using the same set of basic terms for research project grants to selected Florida universities and these terms do allow for financial accountability at the program level.

To accomplish the goal of meeting the needs of principal investigators the FDP should be expanded to:

- increase the number of agencies involved;
- increase the number of schools involved;
- include all types of research grants and contracts;
- allow for technical reporting to be done on the program level;
- make all awards to a single PI related by definition; and,
- increase budget periods from one year to three or more years.

Before taking these steps, some assessment of risks and benefits needs to be made. The "project" concept of funding gives federal agencies a great deal of control over how research dollars are used, but it also means that dollars are spent to maintain

this level of control that might otherwise support research. Will easing up on controls mean that the door is left open for abuse? Will taking these steps really result in a reallocation of time from administration to research and research support? The University of California Grants Administration Study was designed with these questions in mind.

2. CONTEXT: What the Study Was Not Designed to Accomplish

In order to do this Grants Administration Study, specific federal requirements were singled out so that their effect on research productivity could be made visible. It is not the case, however, that if a given federal requirement were eliminated the identified effects would disappear. The reason for this can be found by looking at a recent case of apparent regulatory simplification.

In September 1986, the Public Health Service (PHS) eliminated its requirement that grantees maintain an Institutional Prior Approval System (IPAS), so long as they could ensure that charges to PHS grants were allowable, reasonable, and allocable. "Allocable" in this context means "allocable to the sponsored project." PHS, in effect, is still requiring grantees to account for expenditures at the project level without specifying how this is to be done. The apparent easing of controls is not real. A preliminary check of University of California campuses revealed that no campus plans to eliminate its IPAS system for the very simple reason that the IPAS is the only way they have to ensure "allocability" on a project-by-project basis. A very different result might have been obtained if PHS had coupled its IPAS changes with a change in the definition of "allocability" that was in accord with the program concept used by PIs: universities do not have a problem protecting themselves from PIs who only have to worry about spending money on their own research programs.

The elimination of the requirement for grantees to maintain an IPAS will, all by itself, probably not result in any administrative changes at the University because it was done in a vacuum, without regard to the real needs and perceptions of scientists and researchers. It will not free up time for research, nor will it result in any dollar savings.

In the same way, if the results of the Grants Administration Study are applied outside the context of the FDP--if, for example, prior approval requirements are simply eliminated from OMB Circular A-21 in the expectation of saving the amount of time the study shows is spent complying with prior approval requirements--then the intent of this study will have been completely violated. The study is designed to show some of the effects that might accrue from an expansion of the FDP; it is not designed to show some of the effects that might accrue from isolated regulatory or statutory changes, because in isolation there is likely to be no effect whatsoever.

In addition, the study was not designed as a cost study based on a statistical analysis of random samples. It shows only a few examples of how certain federal requirements affect university scientists and administrators. On no account should the study results be relied on to give an accurate picture of how an expansion of the FDP would affect every academic department and administrative office of the University. It can, however, be relied on to give an accurate picture of what some of the effects would be in a few departments and offices.

3. DESIGN: How the Study Was Done

The Grants Administration Study was coordinated by the central Office of the President Contracts and Grants Office of the University of California. The study is similar to ones conducted simultaneously at several other major research universities in the United States under the auspices of the National Academy of Sciences' Government-University-Industry Research Roundtable. In many respects the study continues a 1975 NSF-funded project done at Berkeley, Los Angeles and San Diego under the direct'on of John A. Perkins, called "Research Management Improvement Project".

Respondents were sent the instructions that detailed the items to be studied and the method of study. Study results were received from departmental administrators in four academic departments (Chemistry, Engineering, Cardiovascular Research, and Chemistry/Biochemistry), accounting officers at three campuses, and contracts and grants officers at four campuses.

Study results were reviewed and collated in the Office of the President Contracts and Grants Office. This document provides a summary of these results.

The study looked at seven sets of federal requirements for grant administration. Respondents were asked for and provided information on specific procedures that are done within the context of these requirements, namely:

- the processing of one non-personnel cost transfer between two grants;
- the allocation of salary and related costs of one PAR-supported employee among two or more grants to the same PI;
- the processing of one non-competing continuation NIH grant proposal;
- the processing of one OPAS foreign travel request;
- the processing of one OPAS general purpose equipment request;
- the preparation of one interim financial report (SF-269) on an NIH grant; and,
- monthly drawdowns, cash outlay report, and quarterly cash transactions report on the NSF letter of credit.

The information provided was based on the respondent's subjective estimate of what was typically involved in each procedure, ignoring extreme cases of difficulty or easiness. Some respondents provided more detail than others.

For each procedure, respondents were asked to provide a list of steps that were done in their offices, what supplies or services were used, who performed each step, and how much time each step took. For cost transfers, salary allocations, and prior approvals, respondents were asked to indicate which steps were done solely to fulfill a federal requirement, that is, to maintain accountability at the project rather than the program level. (Proposal processing, financial reporting, and letter of credit reporting are all done solely to fulfill federal requirements.)

In reviewing study results, Office of the President Contracts and Grants personnel examined all the steps to see if any were redundant or otherwise not essential to accomplish the procedure. If any of these were not federally caused, they were marked "non-essential University caused." The steps that remained after taking away

all those steps checked "federally caused" or "non-essential University caused" were then reviewed to see if they constituted a complete series and retained a sufficient number of checks and balances to preserve accountability at the program level.

4. RESULTS: What the Study Showed

The study looked at what procedure steps there are; who does them; which ones are essential, University caused non-essential, or federally caused non-essential; and how long each step takes to do. The particular results of each of the seven procedures studied are presented in Appendices A through G.

In general, the conclusions of the study are as follows:

- There is a great deal of federally caused bureaucratic accretion. That is, a substantial amount of time is being spent in the departments and offices studied to satisfy federal requirements for annual project-by-project accounting and reporting.

- There is very little University caused bureaucratic accretion. That is, with respect to the procedures studied that are done in departmental offices, a comparatively small amount of time is being spent doing steps that do not have to be done either to fulfill a federal requirement or to accomplish the essential task at hand.

- In every case studied, the elimination of the relevant federal requirement would result in reductions in time devoted to administration of federal awards (within the context of an expanded FDP).

- In every case studied, the elimination of the procedural steps marked "federally caused" did not appear to increase the risk of abuse of federal funds because the controls needed exist independently of federal requirements.

5. AGENDA: Implement an Expanded Demonstration Project at California

The conclusions of this Grants Administration Study suggest that substantial reductions in the time devoted to grant administration can be achieved without loss of accountability if the Florida grant terms were implemented at the University of California, and expanded to make all federal grants and contracts to the same principal investigator related by definition. Such reductions would also result in improved research productivity by enabling research scientists to devote less time to administration and more to research.

APPENDICES

A. Cost Transfer Study
B. Salary Allocation Study
C. Proposal Processing Study
D. Foreign Travel Approval Study
E. General Purpose Equipment Approval Study
F. Financial Reporting Study
G. Letter of Credit Reporting Study

A. COST TRANSFER STUDY

1. The Federal-wide Requirement

The federal rule that ultimately gives rise to the cost transfer review procedures studied is contained in Section C.4. of OMB Circular A-21, called "Allocable Costs":

a. A cost is allocable to a particular cost objective...if the goods or services involved are chargeable or assignable to such cost objective in accordance with relative benefits received or other equitable relationship. Subject to the foregoing, a cost is allocable to a sponsored agreement if (1) it is incurred solely to advance the work under the sponsored agreement; (2) it benefits both the sponsored agreement and other work of the institution, in proportions that can be approximated through use of reasonable methods; or (3) it is necessary to the overall operation of the institution and...is deemed to be assignable in part to sponsored projects....

b. Any costs allocable to a particular sponsored agreement under the standards provided in this Circular may not be shifted to other sponsored agreements in order to meet deficiencies caused by overruns or other fund considerations, to avoid restrictions imposed by law or by terms of the sponsored agreement, or for other reasons of convenience.

This section of A-21 has been written mainly to protect the government against the possibility of funds that were awarded for one purpose being used for something else.

2. General Effect of the Rule

Section C.4 of A-21 presupposes an environment in which research programs can be divided up in a manner similar to the way the building of an airplane can be divided up into different engineering and assembly tasks (turbine design, wing construction, instrumentation, etc.). In the industrial model, there is very little if any question about what task a particular direct cost benefits. But in the university environment, most charges that benefit a PI's research program are ipso facto of benefit to any part of that program, and could in reality just as easily be allocated to the PI's NSF grant as to his/her NIH grant.

3. Agency Implementation of the Federal-wide Regulation

Federal agencies that support university research currently must write their own grant and contract rules which incorporate, among other things, certain provisions of A-21--in particular, Section C.4. The Public Health Service (PHS), for example, has done this in Part 601 of its Grants Administration Manual and on pp. 41-42 of its Grants Policy Statement. The two paragraphs of Section C.4. of A-21 dealing with the broad topic of allocability have been translated by PHS into 17 paragraphs of agency-specific rules for cost transfers alone.

4. University Implementation of the Federal-wide and Agency Rules

At the University, each separate campus is responsible for implementing cost transfer procedures that ensure compliance with applicable regulations. At the San Diego campus, for example, the A-21 and agency-specific cost transfer rules have resulted in a 21-page procedure document and three different forms (one for the cost transfer request--called UFIN, one for the justification, and one for the accounting office to request further justification and/or documentation).

In the Berkeley campus Engineering Research Center (ERC), a cost transfer typically takes 15 steps to process before being sent to the campus accounting office. In the accounting office, there are an additional 24 steps. This does not include the steps needed to enter the transfer into the general ledger system (which is done at the campus computer center--DPC--and takes very little time per transfer). This is a total of 39 steps to initiate, review and approve a single cost transfer, as shown in the following pages.*

In this example, the entire cost transfer process takes about 3 hours and 40 minutes.

* N.B.: Gender references in this and all examples following have been made by survey respondents with respect to specific individuals. Use of "he" in reference to a PI, for example, is not meant as a generalization.

Procedure Steps
Cost Transfer

A. Departmental Procedures

ORS UFIN's may be necessary because of new fund number assignments (for continuation awards), clerical errors in initial charges, or changes in use of supplies, equipment, etc. The following steps detail the steps involved for a UFIN transfer on a federal grant.

1. Principal Investigator informs ORS of the need to transfer expense.
2. Account clerk reviews the general ledger, BEARS data, and the project file.
3. Call placed to professor or his secretary to request a memo outlining the need to transfer the expense.
4. Secretary or account clerk prepares memo.
5. PI-signs memo, keeping a photocopy for file.
6. After receipt of signed memo, it is routed for ORS approval, and two photocopies are made.
7. UFIN is typed in accordance with information in the memo.
8. If an account monitored by a different clerk is involved, a copy of the memo is submitted or the request is relayed to that person.
9. First account clerk credits her account in BEARS.
10. Second account clerk liens the expense in BEARS against her account.
11. A statement of financial condition is prepared.
12. IF TELECOMMUNICATIONS OR COMPUTER ACCOUNTS ARE INVOLVED, the clerk requests additional documentation via phone calls to the PI or his secretary.
13. The account clerk gathers required documentation (ledgers, memo, statement) and makes photocopies.
14. UFIN and backup are reviewed and approved by Accounting Supervisor.
15. Copies are made of UFIN, financial statement, signed memo, and all supporting documents. Copy packets are mailed individually to department(s)/PIs involved, originals are mailed to Sproul Hall, and copies are distributed to ORS account clerks involved (packet is filed in pending folder until account is reconciled).

B. Accounting Office Procedures

a. Accounting Assistant III:

1. Stamps UFIN 120 with date of receipt.

2. Reviews each line entry in the UFIN 120 for completeness of data.

3. Reviews UFIN 120 for signature of principal investigator or other academic officials

4. Compares amount of cost transfer of $5,000 or more against the original ledger entry.

5. Checks date of original entry of cost being transferred, determines timeliness of cost transfer, and, if late, ascertain adequacy of explanation for tardy transfer.

6. Reviews cost restrictions by the funding agency and ascertains conformance of cost transfer with agency requirements.

7. Reviews explanation for cost transfer and determines it adequacy.

8. Reviews transfers involving redistributed cost for approval of pricing and allocation method.

9. Reviews cost allocation method for partial transfer and determines its adequacy.

10. Reviews Statement of Contract/Grant Financial Condition for completeness and signature of Business Officer/Administrative Assistant.

11. Ascertains cost transfers requiring additional documentation.

12. Reviews supporting documentation required for transfer of cost from an overdrawn contract/grant or to a terminated contract/grant with unexpended funds.

13. Completes Review Checklist (FSCG-67 or FSCG-69) to document satisfactory review of UFIN 120.

14. If approved, initials and forwards UFIN 120 to Senior Accountant for final approval.

15. If UFIN 120 is disapproved or additional information is needed to process UFIN 120, prepares FSCG-71 and forwards to Senior Accountant for signature.

b. Senior Accountant:

1. Reviews explanation for cost transfer.

2. Reviews documents supporting transfer of cost from an overdrawn contract/grant or to a terminated contract/grant with unexpended funds.

3. Determines adequacy of supporting documents.

4. Determines reasonableness of cost transfer.

5. If approved, initials and forwards UFIN 120 to General Accounting for processing into the general ledger system.

6. If disapproved, signs letter returning UFIN 120 to originating department.

c. Accounting Assistant II:

1. Batches UFIN 120's for processing into the general ledger system.

2. Stamps UFIN 120's with journal number.

3. Mails UFIN 120's to DPC.

5. How to Reduce Bureaucratic Accretion

Survey respondents indicated that steps 3-7, 11-12, and 14 of the departmental procedure, and all the steps in the accounting office procedure, are done solely to fulfill federal requirements. If we look at these steps, we can see that they all involve decisions regarding project-by-project allocability that must be justified and documented. Can these steps be eliminated without subjecting the University to risk of misuse of funds? We can answer this question by examining the remaining steps.

Steps 9 and 10 of the departmental procedure (totaling one-half hour) have to do with entering data into a departmental tracking system (called BEARS). The Engineering Department, along with several other large departments on the Berkeley campus, maintains this tracking system simply because the campus general ledger system is not flexible or timely enough to meet the department's needs. Given an ideal ledger system, these steps are non-essential.

What remains are the following steps:

1. PI requests transfer of charges (either verbally or in a brief memo);
2. Account clerk reviews relevant documents;
8. If an account monitored by a different clerk is involved, the request is relayed to that person;

13. Account clerk gathers required documentation and makes copies;
15. Request package is sent to be entered into the general ledger system, with copies sent to appropriate personnel.

(Note: Step 15 has been slightly altered to have the department send the cost transfer request directly to the campus computer center, because the steps involving the accounting office have been removed.)

The five steps constitute a simple cost transfer process where the only controls are the PI's incentive to produce research results and the department clerk's ability to translate the PI's wishes into "language" the computer center can understand. The time needed for steps 1, 2, 8, 13, and 15 totals 1¼ hours.

From the University's point of view, this is all that is needed to ensure that charges against federal awards will benefit a PI's program of research, since it is highly unlikely that a PI would allow charges to his/her grants or contracts that would not benefit the program. From this we may conclude that steps 8 and 9 constitute department-caused "bureaucratic accretion" and steps 3-7, 11-12, 14, and all the accounting office steps constitute federally-caused "bureaucratic accretion." The latter is a direct function of the project-by-project allocability rules of A-21 and the granting agencies. These federally-caused steps amount to 1 hour and 55 minutes.

In sum, it took in this example more than 2½ times more effort (3 hrs. 10 min. vs. 1 hr. 15 min.) to ensure project-by-project accountability than it would have to

ensure program-by-program accountability. To put this another way, doing away with the department-caused non-essential steps would reduce the cost transfer process time by 12%; doing away with the federal requirements would reduce the time by a further 54%.

B. SALARY ALLOCATION STUDY

1. The Federal-wide Requirement

The federal rule that most affects the procedure studied is contained in Sections J.6.b.(1)(b) and J.6.b.(2)(b) of OMB Circular A-21, which states in part:

> The apportionment of employees' salaries and wages which are chargeable to more than one sponsored agreement...will be accomplished by methods which will...produce an equitable distribution of charges for an employee's activities....
>
> The method must recognize the principle of after-the-fact confirmation or determination so that costs distributed represent actual costs....

This rule has been written mainly to protect the government against the possibility of federal funds being used to pay a university employee for work that did not directly benefit the project being supported.

2. General Effect of the Rule

Like any well-run organization, the University has its own personnel system and personnel policies. No organization could last very long if it lacked sufficient controls to ensure that employees receive compensation for, and only for, the work they are supposed to do. A-21, however, does not lay out standards for an institution's personnel system but lays down procedures for carrying out one aspect of what a personnel system would normally do-- namely, ensure that people get paid only for the work they perform. In addition, the A-21 rule mandates project-by-project accountability for work performed and does not recognize the program concept (see Appendix A).

The effect of the federal rule concerning salary allocations is to graft onto the existing personnel system another system (the PAR system) that exists solely to provide project-by-project after-the-fact confirmation of work performed.

3. University and Campus Implementation of the Federal-wide Rule

The University has developed its personnel policy to meet a variety of local, state and federal needs. It is then up to individual campuses to promulgate procedures in accordance with this policy. Because of the extra documentation requirements associated with payroll charges to federal awards, campuses have had to develop essentially two sets of procedures. This is clearly shown, for example, in the Berkeley campus Accounting Handbook. Pp. 10-14 of Section H prescribe procedures for maintaining departmental time records, verifying payroll payments, and controlling payroll check processing. Alongside this we have 14 pages of Section J, which prescribe procedures for filling out Personnel Activity Reports (PARs).

What impact does this dual set of procedures have at the departmental level? At the Los Angeles campus, it means that each employee on a federal grant or contract has to complete two after-the-fact records: the Employee Time Record and the PAR. The reason both forms have to be completed is because each form is produced under a separate procedure: the Employee Time Record is required by the personnel system; the PAR form is required by A-21.

In practice, the two procedures are run together. In the Biochemistry/Chemistry Department on the Los Angeles campus, it takes 81 steps to run through both procedures, as shown below:

Procedure Steps
Salary Allocation

1. PI contacts Contract and Grant personnel in the Business Office to obtain current balances on his grants.

2. PI makes decision to hire an SRA (Staff Research Associate).

3. PI contacts Personnel Office to discuss current title and salary.

4. PI has secretary type memo to Personnel Assistant requesting the posting of an SRA job.

5. Personnel Assistant notifies PI that a job card is necessary for any position above the SRA 1 level.

6. PI has secretary type up a job card for the position.

7. Secretary returns job card to Personnel Area.

8. Personnel Assistant types up a requisition for an SRA and sends this, together with the job card, to the main Personnel Office on campus.

9. Personnel Office reviews job card and requisition and returns a copy to the department showing when the job will appear in the weekly job bulletin (a week's clearance for affirmative action purposes is mandatory).

10. Personnel Office sends department packet of paperwork to be completed when job is filled, i.e., Employment Offer Form, Interview and Hire Record Form (for Affirmative Action Information Reporting).

11. Prospective applicants' information is received in the department and reviewed.

12. Applicants are interviewed by the PI.

13. Each applicant interviewed is recorded on the Interview and Hire Record.

14. The PI contacts the Department Personnel Assistant when he has made a decision to hire.

15. Department Personnel Assistant contacts Personnel Office for approval to make job offer.

16. Department Personnel Assistant informs PI that approval has been obtained.

17. PI makes job offer.

18. The PI, or his secretary, make an appointment to bring the individual in to the Personnel Office to be placed on the payroll.

19. The Personnel Assistant assembles a PAF (Personal Activity Form), a PDF (Personal Data Form), a W-4 (Tax Reporting Form), a State Oath and Patent Agreement, an Ethnic Identity Form, a Request for an I.D. card, and a Key Request Form (if the individual is not an American citizen, then two Additional forms are also required).

20. The applicant fills out all the above forms, except the PAF and PDF forms.

21. The Personnel Assistant reviews the forms and assists the individual with those that are incomplete.

22. The Personnel Assistant types the information, regarding the various grants that the applicant will be paid from, on the PAF form. She also fills out the PDF form from the information provided by the applicant.

23. The Personnel Assistant types up a pink payroll card, showing each grant the individual is to be paid from, and the percentage of pay to be paid from each grant. This will be used to generate the payroll.

24. The package of forms, when complete, is then logged out (into a record log, showing type of action, date, to whom being mailed), and sent to the PI for signature. At this time a recording is made, to show where to charge the paperwork processing. This record will also be used for cost center purposes.

25. The forms are placed in the PI's mailbox for pickup.

26. Secretary picks up paperwork from mailbox, and delivers to the PI.

27. Secretary delivers forms back to the Personnel Section.

28. Personnel Assistant logs forms out to the Payroll Office on campus for processing.

29. The Personnel Assistant sends a time sheet to the employee showing the grants the employee is paid from.

30. The employee fills out the time sheet, showing number of hours worked on each grant, on each day of the month. Vacation and sick leave time used are also recorded at this time.

31. Employee returns time sheet to the Personnel Assistant.

32. Personnel Assistant takes time sheet and posts the information shown to the pink payroll card.

33. Within two or three weeks, a turnaround PAF form is sent from the Payroll Office to the department, with imprinted information showing the information that was originally sent in. At this time, the employee is considered to have been placed into the "system" and has been assigned an employee number.

34. Time listings are mailed to the department, showing the employee's name on each of the grants where pay is to be generated. These time listings are used to effect the payroll each month.

35. The Time Listings, since they are perforated, are separated by the Personnel Assistant.

36. The Personnel Assistant then writes the PI's name on each Time Listing, according to the grant number that appears.

37. The Personnel Assistant then alphabetizes the Time Listings.

38. The pink payroll card is then pulled and the current month is posted for each of the grants that the employee will be paid from.

39. Two Personnel Assistants verify from the Time Listings to the pink payroll card, the accuracy of the rate of pay and each grant from which the employee will receive pay.

40. One Personnel Assistant then posts the information to each respective Time Listing as the other Personnel Assistant reads off the pertinent information.

41. When the above steps (34 through 36) have been accomplished, the payroll is then checked again by the Personnel Assistants.

42. The entire payroll is then forwarded to the Contract and Grant Assistant to check.

43. The Contract and Grant Assistant checks the payroll and shows any corrections that need to be made.

44. The Contract and Grant Assistant forwards the payroll back to the Personnel Assistant.

45. The Personnel Assistant makes corrections if necessary, then totals the Time Listings, signs each individual sheet, and delivers them to the Payroll Office.

46. The Personnel Assistant receives the package of PAR forms (two sheets for each individual; the top form is yellow and the second is white). Together with the PAR forms are alphabetized printout sheets (APS), which show names of all

88-118 0 - 88 - 8

individuals for whom PARs are issued. These come from Contract and Grant Accounting.

47. Personnel Assistant separates the perforated PAR forms.

48. Personnel Assistant numbers the APS sheets.

49. Personnel Assistant determines the PI for whom the employee shown works, by using the previous APS list, graduate or postdoctoral list, and personnel files.

50. Personnel Assistant places PI's initials next to number on APS list.

51. Personnel Assistant numbers PAR for individual by referring to APS.

52. Personnel Assistant places the PI's initials next to number assigned on the PAR.

53. Personnel Assistant types memo, addressed to PI, providing instructions on how to fill out the PAR, and the date it must be returned.

54. Personnel Assistant duplicates memo on the copy machine.

55. Personnel Assistant attaches memo to PAR.

56. Personnel Assistant addresses memo to PI and attaches to PAR.

57. Personnel Assistant places memo and PAR in PI's mailbox.

58. Secretary picks up PAR from mailbox.

59. Secretary delivers PAR to PI.

60. PI determines if PAR correctly distributes individual's effort (100%) between Sponsored Projects and Other Institutional Activities.

61. PI writes in distribution % and signs PAR.

62. PI gives completed PAR to secretary.

63. When PI is not available to complete PAR, secretary seeks employee shown on PAR for signature.

64. Employee fills in percentage of distribution and signs form.

65. Employee returns PAR to secretary.

66. Secretary returns PAR to Personnel Assistant in the Personnel Section when completed.

67. Personnel Assistant checks PAR to determine if completed and signed.

68. Personnel Assistant types memo to PI if not filled out correctly, explaining omission or error in distribution of effort.

69. Personnel Assistant places PAR, with memo attached, in PI's mailbox.

70. Secretary collects PAR from mailbox.

71. Secretary gives PAR to PI.

72. PI reviews memo and PAR to determine if any corrections are necessary before signing.

73. PI returns PAR to secretary.

74. Secretary returns PAR to Personnel Assistant.

75. Personnel Assistant places check mark on APS to show PAR has been returned from PI.

76. Personnel Assistant separates white PAR copy from yellow PAR copy.

77. Personnel Assistant addresses an envelope to Contract and Grant Accounting.

78. Personnel Assistant inserts white copy of PAR into envelope and sends through campus mail to Contract and Grant Accounting.

79. Personnel Assistant types label for vertical file pocket for the current quarter.

80. Personnel Assistant files vertical file pocket, by date, with PARs from the previous quarter.

81. Personnel Assistant places yellow copy of PAR in appropriate vertical file pocket, according to numerical order determined by APS.

The first 28 steps concern hiring the employee and drawing up the necessary appointment documents. These steps are done once per employee. In steps 29-32 the employee receives and fills out a time sheet for the previous month's work, and the information on the time sheet is recorded. These steps are done 12 times a year. In steps 33-34 the employee's appointment is confirmed (once per employee). Steps 35-39 concern departmental verification of the different grants being charged portions of the employee's salary. These steps are done each month. Steps 40-45 pertain to monthly departmental verification of the appointment documents as compared to the time actually worked. All the remaining steps (46 through 81) have to do with quarterly processing of the PAR reports for the employee. As noted earlier, the PAR report repeats on a quarterly basis what the employee and the employee's supervisor have already attested on a monthly basis.

4. How to Reduce Bureaucratic Accretion

It is clearly unnecessary for the employee to have to certify twice that he/she has put in the required effort each reporting period. If the PAR requirements were eliminated, the number of steps in the salary allocation process could be reduced substantially. In this example, steps 46-81 would not have to be done each quarter, and for one employee this would save 8 hours per year.

Steps 35-39 could also be eliminated each month if it is not necessary to check up on the employee's own certification of apportionment of effort among different grants. Such apportionment is required by the federal requirement discussed in Section 1 of this Appendix. For one employee, this would save an additional hour and 10 minutes a year.

Total "bureaucratic accretion" per employee per year in this example is over 9 hours. In contrast, the time needed per year to fill in, record, and verify the employee's time sheet (which would have to be done even without A-21), totals 7 hours and 50 minutes. Federally caused bureaucratic accretion increases this time by about 120%.

C. PROPOSAL PROCESSING STUDY

1. Agency Rules

Each federal agency develops its own procedures for applying for grants. At the Public Health Service (PHS), new and renewal applications are handled differently from noncompeting continuation applications. This is principally because the latter are not peer-reviewed but are required in order to give the agency a yearly look at how a project is proceeding both technically and financially. These annual applications are in addition to the application for the entire 3 or 5 year project.

2. General Effect of the Rules

Scientific research is a long-term effort. From the principal investigator's point of view, a PHS project grant lasting 3-5 years provides temporary and partial support for an ongoing multifaced research program, and it makes no sense to ask after each 12-month period what progress has been made specifically with respect to the work supported by a particular grant. This lack of fit between long-term PI needs and short-term federal requirements has been well documented in hearings conducted in the Spring of 1986 by the Science Policy Task Force (Congressman Fuqua, Chairman) and in a report prepared by the General Accounting Office on "Assessing Federal Funding Mechanisms for University Research" (2/86).

3. University Implementation of the Agency Rules

Completing and processing the noncompeting continuation application is a time consuming process for the PI, department personnel, and the Contracts and Grants (C&G) office at each campus, not to mention the time needed for the agency to review and approve the applications.

In order to move the application from the PI and out the door to the agency, 63 steps may be needed: 23 in the PI and departmental offices, and 40 in the C&G office:

Procedure Steps
NIH Proposal Preparation

The steps outlined below are estimated for a non-competitive continuation NIH grant proposal with 30 pages of text and very few problems.

A. Departmental Procedures

1. PI brings incomplete NIH application packet containing computer-generated cover page and all application materials to ORS Grant Supervisor. Grant Supervisor reviews packet with PI, logging it in and setting up a new file. Supervisor completes SPAF and has PI sign. PI submits rough draft of proposal at this time.

2. Grant Supervisor assigns proposal to Grant Assistant, who pulls previous contract file and reviews original proposals with PI.

3. A preliminary budget is worked up, utilizing previous proposal, dBase files and BEARS financial statement.

4. Second Grant Assistant double-checks budget.

5. PI reviews budget with Grant Assistant. If preliminary budget is unsatisfactory, it is revised:
    a. Budget is reworked
    b. Second Grant Assistant checks for discrepancies
    c. PI reviews

6. After PI approves budget, Grant Assistant calculates totals and verifies amounts.

7. Second Grant Assistant double-checks calculations.

8. Approved budget is typed onto NIH forms.

9. Funds remaining on existing contract must be reviewed and rebudgeted, repeating steps 3 through 8.

10. Grant Assistant composes budget justifications for both new and continuing grants and types them onto NIH forms.

11. Grant Assistant completes cover page of NIH application, using budget totals and other contract information.

12. Grant Assistant edits rough draft of text summary and puts it on NIH form.

13. Grant Assistant edits and types proposal text onto wordprocessor and prints copy.

14. Grant Assistant re-edits preliminary copy and submits it to PI for review.

15. In consultation with Grant Assistant, PI edits and appends proposal.

16. Final draft is prepared, printed and formatted for NIH forms.

17. Student Clerk photocopies entire packet.

18. Grant Supervisor reviews proposal and budget.

19. If approved, 15 copies are made.

20. Grant Assistant completes SPO approval form.

21. Internal sign-off sheet is typed and mailed to PI for approval.

22. PI receives, signs and returns Internal sign-off form.

23. Originals and 9 copies are mailed to SPO; other copies are for PI and ORS files.

B. C&G Office Procedures

1. Senior Clerk Typist takes proposal and issues it a log # and cover sheet. The date, proposal #, PI's Agency, title of proposal, Research Admin. initials, and due date for the sponsor are entered on the cover sheet.

2. Senior Clerk Typist date stamps cover page.

3. Senior Clerk Typist attaches cover sheet to front of proposal with rubberband.

4. Contract and Grant Assistant logs proposal # into Noncompeting Proposal Book by deadline date and within deadline dates by alphabetical order.

5. Contract and Grant Assistant attaches pink dot to NIH Proposal contract cover.

6. Grant Assistant types in the name of department of NIH proposal, proposal #, title of proposal, new or continuing grant on cover sheet.

7. Grant Assistant fills in the rest of the Proposal Contract Cover.

8. Grant Assistant reviews Sponsored Projects Approval Form (SPAF):

   a. Check to see if needs Dean's signature
   b. Check to see if involving Human and/or Animal subjects
   c. Other

9. Grant Assistant pulls existing award file that corresponds to grant proposal.

10. Grant Assistant fills in proposal # on SPAF.

11. Grant Assistant fills in Sponsor Code by looking it up in Sponsor Code Sheet.

12. Grant Assistant sorts out parts of proposal:

    a. SPO keeps original
    b. Computer copy of proposal for Senior Clerk Typist to input on PC
    c. Dean receives original and one copy of proposal for his/her signature and then returns signed original
    d. Extra copy of proposal for SPO
    e. At least six copies of proposal for sponsor
    f. One copy of proposal for Accounting Dept.
    g. One copy of proposal for Animal and/or Human Subjects Dept. if needed

13. Remove postcard forms containing:

    a. SPO address
    b. PI's address — Postcards of SPO and PI placed on top of proposal.
    c. NIH address

14. Grant Assistant checks to make sure there are enough copies of proposal:

    a. If small amount of copying required, Grant Assistant does it
    b. If large amount of copying required, proposal sent back to Dept.

15. Grant Assistant keeps SPO copy and original. The rest of the copies of the proposal are bundled up and put a label on top. Label has:

    a. PI's name
    b. Agency name
    c. Deadline date

16. Grant Assistant puts bundled stack on Research Administrator's shelf.

17. Grant Assistant types transmittal letter to NIH agency.

18. Grant Assistant types Dean's letter and if needed types memo to Animal and/or Human Subjects Dept.

19. Grant Assistant fills out two page review sheet which is used to note things that are incomplete or odd such as:

    a. Signature of PI on SPAF missing
    b. Signature of Dept. chair on SPAF

20. Grant Assistant compares existing award file to present proposal:

    a. Direct Cost $ of present proposal should equal future award $ of previous proposal already awarded.

21. Grant Assistant does budget analysis:

    a. Notes key personnel sheet to see if it matches "all personnel" category in budget
    b. Check fringe benefit rates of all personnel
    c. Check equipment costs
    d. Check Total Project Costs = Indirect Costs + Direct Costs where Indirect Costs = Direct Costs x Indirect %

22. Grant Assistant reads justification page for items in budget to be justified:

    a. General purpose equipment has to be well justified

23. Current Budget Report must be calculated:

    a. What is approved budget
    b. Money expended
    c. Money left over
    d. Estimated additional expenditure

24. Grant Assistant Checks Progress Report:

    a. If using animal subjects, must answer questions according to Animal Subjects guidelines
    b. If Human Subjects, must answer questions according to Human Subjects guidelines

25. Grant Assistant makes additional comments on Review Sheet

26. Package and place proposal on Research Admin. "proposals to review" shelf consisting of:

    a. Cover
    b. SPAF
    c. Transmittal
    d. Dean's Letter
    e. SPO letter
    f. Review Sheet
    g. Animal and/or Human Subjects letter
    h. Original proposal

27. Research Administrator checks Review Sheet:

    a. Cover Page
    b. Lines on SPAF sheet
    c. Address on Transmittal Letter

28. Research Administrator scans Budget

29. Research Administrator makes highlighted comments on Review Sheet in reference to questions noted by Grant Assistant

30. Research Administrator calls up PI's Dept. to tell them items that need to be changed in the proposal

31. PI's Dept. calls back Research Administrator to negotiate changes in proposal

32. Grant Assistant makes minor changes if needed, otherwise proposal is sent back to Dept. for major changes.

33. Research Administrator reviews changes after Grant Assistant or Dept. has made the changes

34. Grant Assistant sends out original proposal plus six copies to NIH:

    a. Prepare for mailing by Federal Express or UPS
    b. Mail transmittal letter
    c. Mail original Human Subjects letter if needed

35. Grant Assistant does post-reviewing:

    a. Type out Federal Express or UPS mailing forms
    b. Send copy of Human Subjects letter to Human Subjects Dept.
    c. Send copy of Animal Subjects letter to Animal Research Dept.
    d. Send copy of Transmittal Letter to PI and Dept. Administrator
    e. Keep copy of Transmittal Letter in SPO files
    f. Keep SPO copy of proposal and Accounting copy w/Dean's signature

36. Grant Assistant stamps date of Post-Review and stamps UPS date

37. Grant Assistant takes remainder of proposal and puts it in proposal drawer. Grant Assistant signs logout sheet for date proposal sent out and date of post review.

38. Grant Assistant refiles original grant file.

39. Grant Assistant completes miscellaneous post-reviewing steps:

    a. Upon receiving Dean's signature, it is filed with the proposal
    b. Check off SPO cover sheet that Dean's signature has been received
    c. Put Accounting copy in file
    d. Receive insurance forms from Animal and/or Human Subjects

40. Senior Clerk Typist logs into the computer all the information on the SPAF sheet.

Notice that each application must be accompanied by a "Sponsored Projects Approval Form" or SPAF. Most campuses have developed similar forms to enable them to track a proposal as it goes through the system and as a place to record useful information and/or internal approvals.

4. How to Reduce Bureaucratic Accretion

The total time needed to prepare and process a noncompeting continuation application in this example is 44 hours. The average time at the four departments studied is almost 30 hours. About half of this time, on average, is PI time that could otherwise have been devoted to scientific research or training. All of this effort (and whatever agency time is expended) could be eliminated for each year of each PHS grant if the requirement for submitting annual noncompeting continuation applications were eliminated. Since, by the agency's own admission, less than ½ of 1% of such applications are rejected, it does not appear that the elimination of the requirement would significantly reduce accountability--but it could substantially increase research productivity.

D. FOREIGN TRAVEL APPROVAL STUDY

1. The Federal-wide Regulation

The federal rule that is the root of the procedure studied consists of one sentence in Section J.43.e. of OMB Circular A-21, which states that:

> Foreign travel costs are allowable only when the travel has received specific prior approval.

This rule has been written partly to protect the government against the possibility of federal funds being used to pay for foreign vacations by university employees and their families. It has also been written to ensure that grant or contract funds will pay only for foreign travel that benefits specifically the work being supported by the grant or contract.

2. General Effect of the Rule

University travel policy as contained in Business and Finance Bulletin G-28 ("Policy and Regulations Governing Travel") provides that:

> All official University travel shall be either authorized or approved by the Chancellor [or his/her designee]....Authorization should be obtained prior to undertaking official University travel. Travelers who fail to obtain prior authorization may be liable for the expenses incurred. (p. 5)
>
> Terms of an extramural fund source shall govern when they are more restrictive than University travel regulations. (p. 3)

This means that even if the government allowed foreign junkets, University employees would be prohibited from taking them. Even without the federal rule, a University researcher could take a foreign trip only if it related to his/her official duties (i.e., research and instruction).

The real problem arises from the fact that approved foreign travel is supposed to benefit specifically the work being supported--i.e, there must be project-by-project accountability. In reality, an individual researcher decides to attend an international scientific conference on the basis of a notice or invitation and an assessment of whether or not the conference is likely to be of benefit to his/her research. At the University, this decision must be seconded by the researcher's department head (p. 21 of G-28). Ideally, this decision and its second should be based on assessments of benefit to the researcher's overall program of research, and not on the fit between the conference title and the titles of the researcher's grants or contracts. The latter process makes no sense in the context of scientific research: in doing research, the scientist is looking for new leads and different approaches to problems that by definition call for work the course of which is unpredictable.

Nevertheless, the general effect of the A-21 rule, as sensible as it sounds at first reading, is to generate precisely the kind of process which from the researcher's point of view makes no sense: his/her foreign travel request is reviewed by a University administrator who has no scientific training and who has to determine if the trip will wholly benefit a particular project if it is to be entirely charged to that project.

3. Agency Implementation of the Federal-wide Regulation

Federal agencies that support university research have to write their own grant and contract rules which incorporate, among other things, certain provisions of A-21, and in particular Section J.43.e. The National Science Foundation, for instance, has adopted foreign travel rules that are found in the Grants Policy Manual Sections 514 and 731, and in the Grant General Conditions Article 11, paragraphs b-d. Paragraph b of Article 11 refers to Article 2 and the requirement for the NSF Organizational Prior Approval System (OPAS) in Article 1. In these documents, the single sentence in A-21 has grown to five pages.

4. University Implementation of the Federal-wide and Agency Rules

At the University, each separate campus implements the OPAS. At San Diego, for example, the one-sentence A-21 regulation and the five pages of NSF rules are translated into procedure documents totaling 22 pages and 2 forms.

A good example of the individual steps that are done just to go from the PI and through the departmental office is shown on the next two pages, where we see that a total of 37 steps are listed. The next page shows the six steps typically done in the office of the campus authorized OPAS representative. On some campuses the office is in the Accounting Office; on other campuses it is in the Contracts and Grants Office; in both the review procedure is very similar.

Procedure Steps
Foreign Travel Approval

A. Departmental Procedures

1. PI determines a need for foreign travel based on scientific and technical reasons.

2. PI advises secretary to contact travel agency for cost of foreign travel and availability of US Carriers.

3. PI and office personnel discuss the foreign travel. PI advises office personnel what category or categories will finance the foreign travel.

4. If not familiar with agency policy, office personnel reviews policy.

5. Office personnel instructs PI on what to include in the OPAS request.

6. PI obtains OPAS from office personnel.

7. PI drafts justification of foreign travel request.

8. PI gives draft and OPAS to secretary to type.

9. Secretary types OPAS.

10. Secretary gives OPAS to PI for review and signature.

11. PI returns OPAS to secretary.

12. Secretary makes xerox copies.

13. Secretary forwards OPAS to office personnel.

14. Office personnel reviews OPAS.

15. Office personnel forwards OPAS to Chairman's office for review.

16. Chairman reviews and signs OPAS.

17. Chairman returns OPAS to office personnel.

18. Office personnel makes xerox copies.

19. Office personnel forwards OPAS to C&G Accounting Office.*

20. If additional information or justification is required, OCGA calls office personnel to obtain pertinent information.

21. If additional information is not known by office personnel, office personnel calls PI for information.

* Auth. Rep. office for OPAS

22. PI advises office personnel of additional information.

23. Office Personnel calls C&G with additional information.

24. Office Personnel receives copy of approved OPAS.

25. Office Personnel advises PI of OPAS approval.

26. Budget journal (transferring funds from one category to another) is prepared if required. Budget journal and copy of approved OPAS are forwarded to Accounting for processing.

27. Foreign travel is taken.

28. PI gives secretary itinerary and receipts of foreign travel.

29. Secretary prepares travel voucher.

30. Secretary gives PI prepared travel voucher for review and signature.

31. PI reviews and signs travel voucher.

32. PI returns travel voucher to secretary.

33. Secretary forwards travel voucher to office personnel.

34. Office personnel reviews travel voucher. Compares actual travel with requested travel.

35. Office personnel approves travel voucher and attaches copy of approved OPAS.

36. Office personnel retains business office and PI copies.

37. Office personnel forwards travel voucher to Accounting for processing.

B. Accounting Office Procedures

1. Reviews OPAS request for --

   a. Completeness of required data;
   b. Sufficiency of description and justification;
   c. Adherence to NSF guidelines;
   d. Needed rebudgeting between cost categories.

2. Review and pre-approve/pre-disapprove OPAS request.

3. Approve and sign OPAS request or disapprove and sign disapproval memo.

4. Transmit copy of signed OPAS request or return disapproved OPAS request to department.

5. File original of signed OPAS request.

6. Prepare budget journal, if rebudgeting between cost categories is involved.

We can see now how one sentence in A-21 can be translated into more than 40 steps for each prior approval request. This does not even count the steps needed to process a travel voucher once the trip has been approved. The survey found that the approval process alone can take from 3 to 4¼ hours. At the Berkeley campus, the prior approval studied involved the following people:

Department

Principal Investigator
Administrative Analyst
Secretary
Department Head

Accounting Office
Senior Accountant
Extramural Funds Supervisor
Accounting Assistant

5. How to Reduce Bureaucratic Accretion

It is apparent that 43 steps to process a prior approval request is too many steps; seven people to be involved in the process is too many people, and 3-4¼ hours is too many hours.

Of the 37 steps taken in the department, 19 (totaling 2 hours) are done simply to ensure that federal requirements are fulfilled (steps 3-6, 8-14, 19-26 of the departmental procedure shown above). One 5-minute step (no. 18) pertains to copying of the OPAS form and is non-essential because the approval form already does or should contain copies of itself. The remaining 18 steps make up the following 1-hour 15 minute procedure (not counting, of course, the time of the trip):

Department procedure

1.-2. PI determines need for travel and consults with secretary;
7. PI writes or dictates justification of foreign travel request;
15.-17. Review and approval/disapproval by department head;
27. Foreign travel is taken;
28. PI gives secretary travel receipts;
29.-35. Preparation, review, approval of travel voucher by Admin. Analyst;
36.-37. Submission of voucher to accounting office.

These seventeen steps involve only one office and four people. They provide assurance that foreign travel charged to the federal award will benefit the PI's program of research (because the request for travel is approved by the department head) and will be calculated and charged in accordance with University travel policy (because the voucher is approved by the departmental administrator). They do not, however, guarantee that the travel will wholly benefit the particular project supported by the award charged, because that part of the process involving the authorized OPAS representative has been deleted.

The Foreign Travel Approval study showed that in order to ensure project-by-project accountability (vs. program-by-program accountability) it is necessary to increase the time taken for the prior approval request to be processed by about 260%, from 1¼ hours to 3-¼ hours. On the other hand, if program-by-program accountability is deemed sufficient to protect the government's interest, then the departmental time taken to process the exemplified prior approval could be cut from 3-¼ hours to 1-¼ hours. Data from other campuses indicate that elimination of the time needed to review the approval request in the office of the Authorized Representative could cut the total time needed by half an hour, or, on average, from 3 hours 40 minutes to 1 hour twenty minutes. Elimination of University caused non-essential steps could theoretically reduce this even further to about 1 hour 7 minutes on average.

E. GENERAL PURPOSE EQUIPMENT APPROVAL STUDY

1. Federal-wide Regulations

Attachments N and O to OMB Circular A-110 spell out rules for the management and procurement of equipment under federal grants to educational institutions. In addition, Section J.13. of OMB Circular A-21 contains the following definitions and restrictions:

> Equipment means an article of nonexpendable tangible personal property having a useful life of more than two years, and an acquisition cost of $500 or more per unit....
>
> General purpose equipment means equipment the use of which is not limited only to research....
>
> Capital expenditures for general purpose equipment...are unallowable as direct charges, except where approved in advance by the sponsoring agency.

These rules have been written mainly to protect the government against the possibility of federal funds being used to pay for equipment that is not essential to conduct the research being supported.

2. General Effect of the Rules

The University, like any responsible organization, needs to keep track of its own tangible assets. Most of the standards found in Attachments N and O of A-110 function well to enable granting agencies to be reasonably assured that University equipment management and procurement practices and procedures, as outlined in Business and Finance Bulletins BUS-29 ("Management and Control of Inventorial Equipment") and BUS-43 ("Material Management"), meet the federal standards. These Bulletins are 70 and 37 pages long, respectively. Several of the A-110 standards (e.g., concerning purchasing duplicate equipment) have forced the University to initiate controls that would not be in place but for the federal rules.

BUS-43 contains the University's purchasing policies. Equipment purchases are generally initiated on the University Purchase Requisition Form. This form requires signatures for both department approval and administrative approval. There is, however, no certification made that the equipment is essential for the particular project out of which funds are taken to buy the equipment. The procedure which elicits such a certification endorsed by an authorized representative is instituted in response to the A-21 rule quoted above.

3. Agency Implementation of the Federal-wide Regulations

Federal agencies that support university research have to write their own grant rules which incorporate, among other things, certain provisions of A-110 and A-21, and in particular Attachments N and O and Section J.13. The National Science Foundation has done this in Section 512 of its Grants Policy Manual and Articles 1, 2, and 7 of its Grant General Conditions. In these documents, NSF has delegated the authority to approve general purpose equipment purchases on NSF grants to an

authorized institutional official under an Organizational Prior Approval System (OPAS).

4. University Implementation of the Federal-wide and Agency Rules

At the University, each separate campus implements the OPAS. At the Berkeley campus, for example, the NSF rules have resulted in ten pages of procedure documents. These documents are then translated into 25 steps, which altogether take over 5 hours to complete. The PI's time spent initiating and justifying the equipment approval request in this example was one hour and fifteen minutes.

Procedure Steps
General Purpose Equipment Approval

A. Departmental Procedures

1. Professor completes order form (ORS-6) for selected purchase and submits it to ORS Purchasing Clerk.

2. Form is received by Clerk, date-stamped, and reviewed.

3. Clerk verifies project recording numbers and account title.

4. Contract file is pulled and itemizations of equipment are checked. If the requested item is not included in the budget, the PI must request approval via the OPAS procedure.

   a. Grant supervisor notifies the PI by phone of this need.
   b. PI writes justification for equipment purchase and sends to ORS.

5. Clerk checks BEARS for funding status. If there are not sufficient funds in the equipment sub-budget, a transfer of funds is needed.

   a. A printout of the account's status (BEARS statement) is made.
   b. Clerk informs Grant Supervisor of need to transfer funds.
   c. Grant Supervisor phones PI to discuss transfer and to determine sub-budget to be debited.

6. Grant Supervisor completes OPAS (including transfer of funds).

7. Student clerk makes one copy each of OPAS and BEARS statement.

8. Purchasing clerk types a short memo of instructions, attaches it to the OPAS and BEARS statement, and sends all to the PI, keeping copies for pending file.

9. PI signs and returns OPAS to ORS.

10. ORS sends OPAS to the Contracts and Grants section of the UCB Accounting Office.

11. In anticipation of approval, Purchasing Clerk prepares Purchase Requisition and Equipment Certification and sends Certification to PI for signature.

12. Professor completes and signs Certification and returns to ORS.

13. Upon receipt of approved OPAS, clerk photocopies five sets of the requisition, OPAS, and Certification. Sets are sent to UC Purchasing, the PI, ORS Accounting, ORS Receiving, and to the file.

14. ORS Account Clerk receives copies and enters lien in BEARS.

15. Purchasing Clerk appends info into dBase datafile and awaits copy of official purchase order.

16. Order is received form Purchasing; copies are made by Clerk.

17. Clerk enters PO data into dBase and routes copies of order to ORS Receiving, ORS Account Clerk, and PI.

B. Accounting Office Procedures

1. Reviews OPAS request for --

   a. Completeness of required data;
   b. Sufficiency of description and justification;
   c. Adherence to NSF guidelines;
   d. Needed rebudgeting between cost categories.

2. Ascertain whether item falls within definition of general purpose equipment.

3. Ascertain whether equipment item may be approved under OPAS.

4. Review and pre-approve/pre-disapprove OPAS request.

5. Approve and sign OPAS request or disapprove and sign disapproval memo.

6. Transmit copy of signed OPAS request or return disapproved OPAS request to department.

7. File original of signed OPAS request.

8. Prepare budget journal, if rebudgeting between cost categories is involved.

5. How to Reduce Bureaucratic Accretion

If we look carefully at these 25 steps, we find that 13 of them (4-6 and 8-10 of the departmental procedure; 1-7 of the accounting office procedure) are done to comply with federal rules calling for prior approval of general purpose equipment purchases by an authorized representative. These 13 steps take a little more than 3½ hours, or about 70% of the total time to process the approval request. These 3½ hours include 45 minutes of PI time spent writing the OPAS justification as required by Article 7 of the NSF Grant General Conditions.

One fifteen-minute step (14) is spent entering information into the department's own grant-monitoring system (called BEARS). This is a non-essential University-caused step because it could be eliminated (in theory) if the University's accounting system were more timely and flexible. Another five-minute step (no. 7 of the departmental procedure) is not needed because it involves making copies of a form that should already have its own pre-printed copies.

The remaining 10 steps if put together would like this:

Departmental Office

1. PI completes departmental equipment request form;
2.-3. Form is reviewed in departmental office;
11. Purchase requisition and equipment certification (for screening purposes) are prepared in departmental office;
12. PI signs requisition and certification;
13. Approved requisition is sent to purchasing department;
15. Purchase requisition information is filed in dept. tickler;
16. Order is received from purchasing department;
17. Order is filed and copies are routed.

Accounting Office

8. Budget journal is prepared if rebudgeting is necessary.

Without the OPAS procedure, we notice that there is now a need for a second endorsement of the PI's request, in order to conform with University purchasing policies which require two signatures. This can reasonably be accomplished by having the department head approve the requisition. Based on other campus departments surveyed, such a step normally takes about 10 minutes. The ten essential steps plus the time for the department head's signature take an estimated 1-3/4 hours, of which 30 minutes of PI time is needed to complete the equipment request form and review and approve the purchase requisition. Ten minutes of department chair time is needed to certify that the equipment purchase is within the PI's scope of official university duties (i.e., research and instruction).

In other words, it took in this example 1-3/4 hours (including 30 minutes of the PI's time) to ensure that general purpose equipment bought with federal funds would be appropriate for the PI's research program; it took over 5 hours (including 1-1/4 hours of the PI's time) to ensure that general purpose equipment bought with federal funds would be used only on the project from which the funds were expended. This project-by-project accountability increased the PI's administrative burden by 250%, and lengthened the whole approval process by 285%.

F. FINANCIAL REPORTING STUDY

1. The Federal-wide Regulation

Attachment G to OMB Circular A-110 spells out standards for financial reporting requirements that federal grant-making agencies must adhere to in their own grant rules. Paragraph 3.a. of this Attachment specifies that the Financial Status Report (SF-269) is to be submitted by grantees at least annually, to report expenditures and unobligated balances for each project, unless the granting agency determines that other reporting under the agency's letter of credit is sufficient (see Appendix G of this document).

2. General Effect of the Rule

This A-110 rule has meant that the University accounting system must record expenditures and obligations on a project-by-project basis. In addition, for agencies requiring SF-269s, financial information that appears on monthly ledgers for each project supported by that agency must be reformatted each year for entry on a Financial Status Report. At one campus, for example, four staff members in the accounting office are needed to handle the reporting of 600 NIH grants, while for 400 NSF awards (which do not require SF-269's) all the accounting chores are able to be done by one person.

3. Agency Implementation of the Federal-wide Regulation

Virtually all NIH grants must be reported on once a year. Reporting instructions which supplement those in A-110 are given in pp. 54-55 of the PHS Grants Policy Statement.

4. University Implementation of the Federal-wide and Agency Rules

Each campus accounting office studied follows similar procedures for complying with the financial reporting requirements for NIH grants. At the San Diego campus, for example, it typically takes 33 steps to prepare one interim SF-269 for a single NIH grant. By "interim" is meant the annual report due after the end of each budget period, as distinct from the final report due after the end of the project period. These 33 steps are listed on the following page. The total time needed to do all 33 steps is over 12 hours for each report.

Procedure Steps
Preparation of Interim SF-269 for NIH Grant

1. Administrative Assistant pulls file and copies necessary information onto Final Direct Cost Expense Form (FDCEF) and Equipment and Travel Lists.
2. Administrative Assistant mails FDCEF and Equipment and Travel Lists to Departments.
3. Administrative Assistant sorts and prints database in termination date order.
4. Administrative Assistant determines which SF-269's have not been filed.
5. Administrative Assistant determines which FDCEF's are outstanding from departments.
6. Administrative Assistant notifies department of need for submission of FDCEF.
7. Division Manager follows up on FDCEF's that are still outstanding.
8. Administrative Assistant matches incoming FDCEF with grant file.
9. Administrative Assistant reviews FDCEF package to make sure all necessary documents are included.
10. Administrative Assistant notifies department regarding absence of any necessary documentation such as eqt/travel lists.
11. Administrative Assistant verifies that all necessary OPAS/Agency approvals have been obtained.
12. Administrative Assistant notifies department regarding absence of any necessary OPAS/Agency approvals.
13. Administrative Assistant logs FDCEF into database.
14. Administrative Assistant copies, on microfiche printer, the necessary General Ledger copies.
15. Administrative Assistant cross checks ledger copies with FDCEF.
16. Administrative Assistant inputs necessary information into FSR worksheet.
17. Administrative Assistant verifies Award Amount with PMS report.
18. Administrative Assistant prepares rough draft of SF-269 and submits to secretary for typing.
19. Secretary types SF-269.
20. Administrative Assistant prepares necessary budget and financial journals.
21. Administrative Assistant submits SF-269, worksheet, file and journals to Section Leader for review.
22. Section Leader reviews worksheet and SF-269 for completeness and accuracy.
23. Section Leader submits report to Division Manager for final review.
24. Division Manager reviews report and file for completeness and compliance with special terms of award.
25. If questions, return to Section Leader for follow-up.
26. If questions, repeat steps 10 through 12.
27. Division Manager approves and signs SF-269 and returns file to Administrative Assistant.
28. Administrative Assistant makes necessary copies of SF-269 and journals.
29. Administrative Assistant mails SF-269 and necessary copies to NIH.
30. Administrative Assistant logs out SF-269 in database.
31. Administrative Assistant sends necessary copies of SF-269 to department and to Contracts and Grants Office.
32. Administrative Assistant assigns journal numbers and submits necessary journals for processing.
33. Administrative Assistant inserts required documents and copies into grant file.

5. How to Reduce Bureaucratic Accretion

The San Diego campus prepares about 400 financial reports on NIH grants each year. At 12 hours per report, this is 4,800 hours per year. Figuring one FTE at 1,960 hours per year, the San Diego campus is devoting 2 1/2 FTE to the preparation of NIH financial reports. This is effort that would not have to be done if NIH adopted the NSF practice of accepting letter-of-credit reports in lieu of the SF-269. Substantial additional savings would also be achieved if other agencies adopted the NSF practice.

G. LETTER OF CREDIT REPORTING STUDY

1. The Federal-wide Regulations

Federal grant funds are generally made available to grantees under agency letters of credit. Paragraphs b.(1) through b.(4) of OMB Circular A-110 instruct granting agencies on how to manage reporting under their letters of credit. In particular, cash drawdowns should parallel grantee cash needs with at most a three day lag, and grantees should be required each quarter to submit a Federal Cash Transactions Report (SF-272) for each letter of credit.

2. General Effect of the Rules

These A-110 rules have meant that cash needs must be forecasted by campus accounting offices on an aggregate basis for all awards covered by a single letter of credit. Cash drawdowns must be made periodically five to seven times a month, and the Federal Cash Transactions Report must be submitted four times a year for each letter of credit.

3. Agency Implementation of the Federal-wide Regulations

Each agency implements the A-110 rules for its own awards. The NSF Grants Policy Manual, for example, contains twelve pages of instructions for payment and reporting under its letters of credit with grantee institutions. NSF procedures entail periodic requests for payment, quarterly Federal Cash Transactions Reports, and cash outlay reporting.

4. University Implementation of the Federal-wide and Agency Rules

Each campus accounting office studied follows similar procedures for complying with the letter of credit requirements for NSF grants. At the San Diego campus, for example, seventeen steps are involved in each cash drawdown, totaling about 3 hours. Cash drawdowns are made 84 times a year, to comply with the federal requirement that daily cash balances not be more than three working days ahead of actual cash needs.

Twenty-three steps are needed to prepare and submit the Federal Cash Transactions Report, totaling 140 hours for each report. This report is submitted 4 times a year for each letter of credit.

Seven steps are needed to prepare the Cash Outlay Report which is submitted twice a year. These 7 steps take 1 hour and 20 minutes.

These three sets of steps are shown in the following pages. The yearly cost in terms of time for the NSF letter of credit alone is over 800 hours.

Procedure Steps
NSF Cash Drawdown

1. A schedule of the historical variance between monthly expenditures is prepared.
2. Apply the variance to the previous month's estimate to determine the current month estimate.
3. The current month draw schedule is determined by applying the cash model to the expenditure estimate.
4. On a scheduled date the cash request and deposit advice forms are prepared.
5. The cash requests are typed.
6. Manager reviews and signs the cash request.
7. The cash requests are mailed to the cashiers office at the University.
8. Bank deposit forms are typed.
9. The subledgers are updated and copies of the cash request and deposit advice forms are filed.
10. The paid deposit receipts are logged in and the cashier is called with the date paid information.
11. The paid deposit receipts are filed.
12. Prepare the paid cash receipts for key entry.
13. The paid deposit advice is key entered to the General Ledger system.
14. Determine the previous month's expenditures from the General Ledger.
15. The expenditure history is updated.
16. To update the current month's estimate, apply the variance to the previous month's actual expenditure.
17. The drawdown schedule is updated.

Procedure Steps
NSF Quarterly Report Preparation

1. Mail Room receives the SF-272 Report and sends it to the Accounting Office.
2. Extramural Funds Division (EMF) receives the report and date stamps it.
3. Clerk makes four photocopies of the report.
4. Two copies are mailed to the Office of Contracts and Grants (OCGA) for their annotations.
5. OCGA mails one copy to OCGA at Scripps Institute (SIO) for their annotations.
6. SIO annotates their copy and returns it to OCGA.
7. OCGA annotates their master copy and mails it back to EMF.
8. The GL 799 (quarterly expenditure report) is produced and sent to EMF.
9. The GL 799 is reconciled to the General Ledger.
10. Checklists for awards that are closing are sent to the departments.
11. The departments prepare the checklists and return them to EMF.
12. Expenditures for closing awards are reviewed.
13. Manager reviews the closed awards.
14. The schedule of anticipated expenditures is reviewed.
15. Anticipated expenditures are added to the GL 799.
16. Reportable expenditures are determined (i.e. back out overdrafts and non-LOC expenditures).
17. Reportable expenditures from the GL 799 are posted to the SF-272 Report.
18. The LOC withdrawals are reconciled to the amounts on the SF 272 Report.

19. Cash on hand is reconciled and reported to the general ledger.
20. A cover letter is typed.
21. The Manager reviews and signs the report.
22. Two copies of the finalized reports are made.
23. Three copies (the original, a copy and OCGA's copy) are mailed to NSF.

Procedure Steps
NSF Cash Outlay Report

1. The estimate for the current year's expenditures is prepared.
2. The estimate for the next year's expenditures is prepared.
3. The Cash Outlay Report is completed.
4. The report is typed.
5. The report is reviewed.
6. The report is telephoned in to NSF.
7. The report is mailed to NSF.

5. How to Reduce Bureaucratic Accretion

The San Diego campus estimates that the NSF letter of credit accounts for about 35% of all letter of credit effort at the campus. Other campus estimates range from 10%-20%. This means that over 2,300 hours (about 1.2 FTE) a year is consumed in letter of credit reporting and cash drawdowns each year at the San Diego campus. Similar results were obtained for the other campuses studied.

If all agency letters of credit were combined into a single letter of credit at each campus, about 80% of the letter of credit activity could be eliminated, on average. Further savings could also be achieved by lengthening the interval between drawdowns, which would reduce the number of drawdowns made each year.

The Research Foundation of
State University of New York
State University Plaza
Albany, New York 12246-0001

Executive Vice President

April 28, 1987

The Honorable Lawton Chiles
United States Senate
Chairman
Subcommittee on Federal Spending,
Budget, and Accounting
250 Senate Russell Office Building
Washington, D.C. 20510-0901

Dear Senator Chiles,

We are encouraged that the testimony on the Florida Demonstration Project (FDP) on Research Productivity, presented to your Subcommittee at its April 14th hearing clearly indicated the benefits of eliminating various federal grant administrative requirements. We wish to request that the following comments concerning the FDP be added to the testimony provided to the Subcommittee on April 14, 1987.

The Research Foundation of State University of New York, which administers federally and non-federally sponsored programs on behalf of the State University of New York, has supported efforts to streamline the administration of grants and contracts from federal sponsors. In fact, the State University of New York participated in the piloting of the National Science Foundation Organizational Prior Approval System and more recently it participated in the survey of research productivity and administrative costs presented by Dr. John Dearden, of John Hopkins University.

Now that there is strong evidence that FDP was successful we are most anxious to participate in the project and recommend that the provisions tested in Florida be extended to all universities and colleges immediately.

Being the largest single university system in the world, now expending almost $140 million annually as a result of federally funded activities, the advantages to SUNY under the new system would be significant. We are certain that SUNY faculty working on projects funded by the five federal agencies participating in the FDP would be able to redirect effort, now spent on administrative activity, to the technical requirements of their projects.

In addition, we have three further recommendations which support the testimony at the hearing. They are:

1. Apply the current provisions of the FDP to all federal agencies.

2. Include federal contracts in the project since contracts to universities could also be administered more efficiently if they were subject to the same administrative requirements now in operation for grants under the FDP.

3. Require that preaward activity be standardized among federal agencies in the same manner as has been accomplished under the FDP for postaward activities. Primary consideration should be given to standardization of application (proposal) forms and procedures for submission to federal sponsors.

We applaud your efforts to improve relationships between federal agencies and institutions of higher education by encouraging the elimination of unnecessary administrative requirements. Your leadership in this endeavor has been of great benefit and has been crucial in the progress that has been accomplished to date.

Sincerely,

John F. Buckhoff, Jr.

cc: Dr. Jerome Komisar
Acting Chancellor
State University of New York
Dr. William F. Raub
Dr. John Dearden
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NATIONAL SCIENCE FOUNDATION
WASHINGTON D C 20550

April 21, 1987

OFFICE OF THE
DIRECTOR

Honorable Lawton Chiles
United States Senate
Washington, DC 20510

Dear Senator Chiles:

I am pleased that the Subcommittee on Federal Spending, Budget and Accounting held a hearing on the Florida Demonstration Project. I would like to take this opportunity to share with you my recommendations on the Project's future.

Because the agreement governing the administration of grants awarded in Florida by the five participating agencies expires at the end of this year, decisions must be made in the near future on the further implementation and extension of the Project. While a final evaluation of the Project will be completed in a few months, there is every indication that the Project has been a success. Assuming the final reviews and analyses demonstrate that the Project's objectives have been realized, I recommend that OMB act expeditiously to determine to what extent the basic parameters of the Project can be extended. Based on the Foundation's experience, I would like to see the Project extended, where appropriate, to as many Federal research funding agencies as possible as a means of enhancing federal support for academic science and engineering.

Two important preliminary steps to extending the Project are OMB's prompt review of the impact of the extension on existing administrative guidance, and the involvement in the Project's evaluation and extension of all agencies which sponsor university research. In addition, it is important that states, state systems, and grantees take the initiative by reviewing their own internal requirements and minimizing those that are unnecessary or inconsistent with the philosophy and approach reflected by the Project.

In order to remain competitive, our nation must continually generate new ideas and knowledge through basic research, and turn them into high quality, innovative products and services in the marketplace. University research is a primary vehicle for the development of the necessary ideas and knowledge, and I think the Florida Demonstration Project provides the basis for important changes in the research support relationship, changes which will have a significant effect on the support and productivity of scientific research.

NSF is committed to extending the benefits of the Florida experience to the entire research system, and I look forward to working with you to achieve this end.

Sincerely,

Erich Bloch
Director

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